

**Environmental Assessment for
Rehabilitation of the Levee System in the
Tijuana River Flood Control Project**

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Prepared for:

International Boundary and Water Commission
4171 N Mesa St., Suite C310
El Paso, TX 79902

Prepared by: ***IDEALS - AGEISS, LLC***

848 W. Hadley Ave.
Las Cruces, NM 88005

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TABLE OF CONTENTS

Section	Page
EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION	1-1
1.1 Purpose and Need for Action.....	1-1
1.2 Background.....	1-1
1.2.1 USIBWC Authority	1-1
1.2.2 Flood Control Project Description.....	1-3
1.2.2.1 History and Development.....	1-3
1.2.2.2 Description of the Levees in the Tijuana River FCP.....	1-5
1.3 Consultations and Public Involvement	1-6
1.3.1 Agency Consultation.....	1-6
1.3.2 Public Involvement.....	1-6
1.3.2.1 Scoping.....	1-6
1.3.2.2 Draft EA Review	1-6
2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES	2-1
2.1 Proposed Action.....	2-1
2.1.1 North Levee Enlargement.....	2-1
2.1.2 North Levee Embankment Protection.....	2-1
2.1.3 Rodent Burrow Repair and Mitigation	2-4
2.1.4 Removal of Sediment and Debris	2-4
2.2 No Action Alternative.....	2-4
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES	3-1
3.1 Water Resources	3-2
3.1.1 Affected Environment.....	3-2
3.1.1.1 Flood Control	3-2
3.1.1.2 Hydrology.....	3-3
3.1.1.3 Groundwater Resources	3-3
3.1.1.4 Water Quality	3-5
3.1.2 Environmental Consequences.....	3-6
3.1.2.1 Proposed Action	3-6
3.1.2.2 No Action Alternative	3-7
3.2 Biological Resources	3-7
3.2.1 Affected Environment.....	3-7
3.2.1.1 Vegetation	3-7
3.2.1.2 Wildlife.....	3-8
3.2.1.3 Threatened and Endangered Species	3-9
3.2.1.4 Aquatic Ecosystems	3-15
3.2.1.5 Unique or Sensitive Areas.....	3-15

3.2.1.6	Wetlands.....	3-15
3.2.2	Environmental Consequences.....	3-16
3.2.2.1	Proposed Action.....	3-16
3.2.2.2	No Action Alternative.....	3-18
3.3	Land Use.....	3-19
3.3.1	Affected Environment.....	3-19
3.3.1.1	Residential and Commercial.....	3-19
3.3.1.2	Agricultural.....	3-19
3.3.1.3	Recreational and Natural Resource Areas.....	3-21
3.3.1.4	Other Significant Land Uses in the Project Vicinity.....	3-21
3.3.1.5	Land Use Planning Documents.....	3-22
3.3.2	Environmental Consequences.....	3-23
3.3.2.1	Proposed Action.....	3-23
3.3.2.2	No Action Alternative.....	3-23
3.4	Cultural Resources.....	3-23
3.4.1	Affected Environment.....	3-23
3.4.2	Environmental Consequences.....	3-24
3.4.2.1	Proposed Action.....	3-24
3.4.2.2	No Action Alternative.....	3-25
3.5	Socioeconomic Resources and Transportation.....	3-25
3.5.1	Affected Environment.....	3-25
3.5.1.1	Regional Economics.....	3-25
3.5.1.2	Environmental Justice.....	3-27
3.5.1.3	Transportation.....	3-28
3.5.2	Environmental Consequences.....	3-29
3.5.2.1	Proposed Action.....	3-29
3.5.2.2	No Action Alternative.....	3-30
3.6	Environmental Health.....	3-30
3.6.1	Affected Environment.....	3-30
3.6.1.1	Air Quality.....	3-30
3.6.1.2	Noise.....	3-31
3.6.1.3	Public Health and Environmental Hazards.....	3-32
3.6.2	Environmental Consequences.....	3-34
3.6.2.1	Proposed Action.....	3-34
3.6.2.2	No Action Alternative.....	3-37
4.0	CUMULATIVE IMPACTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES.....	4-1
4.1	Cumulative Impacts.....	4-1
4.1.1	Past, Present, and Reasonably Foreseeable Actions.....	4-1
4.1.2	Cumulative Impacts Summary.....	4-1
4.1.2.1	Proposed Action.....	4-1
4.1.2.2	No Action Alternative.....	4-3

4.2 Irreversible and Irretrievable Commitment of Resources 4-3

5.0 CONCLUSIONS 5-1

6.0 REFERENCES..... 6-1

LIST OF TABLES

Table	Page
Table 1. Environmental Resource Areas Not Carried Forward	3-1
Table 2. High Priority Constituents of Concern for the Tijuana Watershed as Determined by the San Diego County Comprehensive Receiving Waters and Urban Runoff Regional Monitoring Effort.....	3-6
Table 3. Summary of Water Quality Issues for Tijuana Watershed Surface Water	3-6
Table 4. Federally Listed, Proposed, and Candidate Species and their State Listing Known to or That May Occur in San Diego County, California	3-9
Table 5. Population Growth in San Diego County and Relevant Communities Adjacent to the Tijuana River FCP	3-26
Table 6. Estimated Total Employment for San Diego County and Relevant Communities Adjacent to the Tijuana River FCP.....	3-26
Table 7. Total Housing Units in San Diego County and Relevant Communities Adjacent to the Tijuana River FCP	3-27
Table 8. Percentage of Minority Populations and Poverty Rates in the Project Area (2010).....	3-27
Table 9. Average Weekday Traffic Volumes for Primary Roads in Project Area.....	3-28

LIST OF FIGURES

Figure	Page
Figure 1. Tijuana River Flood Control Project Location	1-2
Figure 2. Levee System in the Tijuana River Flood Control Project.....	1-4
Figure 3. Proposed Area for North Levee Enlargement	2-2
Figure 4. Proposed Area for North Levee Embankment Protection	2-3
Figure 5. Proposed Area for Sediment and Debris Removal	2-5
Figure 6. Tijuana River Watershed.....	3-4
Figure 7. Location of Least Bell’s Vireo Critical Habitat in relation to the Tijuana River Flood Control Project.....	3-12
Figure 8. Land Ownership in the vicinity of the Tijuana River Flood Control Project	3-20

LIST OF APPENDICES

Appendix

- Appendix A Consultation
- Appendix B Distribution List
- Appendix C Notice of Availability

LIST OF ABBREVIATIONS / ACRONYMS

AQCR	Air Quality Control Region
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	<i>Code of Federal Regulations</i>
cfs	cubic feet per second
CO	carbon monoxide
CSC	California Species of Concern
dB	decibel(s)
dBA	A-weighted decibel(s)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FCP	Flood Control Project
gpm	gallon(s) per minute
IBWC	International Boundary and Water Commission
MHPA	Multi-Habitat Planning Area
MSCP	Multiple Species Conservation Plan
MSL	mean sea level
MxIBWC	Mexican Section of the International Boundary and Water Commission
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969, as amended
NERRS	National Estuarine Research Reserve System
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O ₃	ozone
Pb	lead
PM ₁₀	particulate matter with an aerodynamic size less than or equal to 10 microns
PM _{2.5}	particulate matter with an aerodynamic size less than or equal to 2.5 microns
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROW	right-of-way
SBIWTP	South Bay International Wastewater Treatment Plant
SDAB	San Diego Air Basin
SHPO	State Historic Preservation Officer
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures
TDS	Total Dissolved Solids
TRNERR	Tijuana River National Estuarine Research Reserve
TSCA	Toxic Substances and Control Act
USACE	U.S. Army Corps of Engineers

USEPA

United States Environmental Protection Agency

USFWS

U.S. Fish and Wildlife Service

USIBWC

U.S. Section of the International Boundary and Water Commission

EXECUTIVE SUMMARY

ES.1 Introduction

The U.S. Section of the International Boundary and Water Commission (USIBWC) proposes to rehabilitate the levee system in the Tijuana River Flood Control Project (FCP). The USIBWC operates and maintains the Tijuana River FCP, located in southern San Diego County, California. It consists of a levee system extending from the international border between the United States and Mexico to the start of the natural Tijuana River channel. The purpose of the Proposed Action is to rehabilitate the levee system to ensure it will perform during a 100-year flood event and protect the surrounding communities. In compliance with the National Environmental Policy Act of 1969, as amended (NEPA; 42 United States Code [U.S.C.] 4321 et seq.) and Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500 to 1508), USIBWC prepared this environmental assessment (EA) to evaluate the potential environmental consequences of this project.

ES.2 Description of the Proposed Action and Alternatives

The Proposed Action is to rehabilitate the levee system of the Tijuana River FCP to protect surrounding communities from a 100-year flood. The USIBWC conducted a geotechnical analysis and engineering evaluation of both levees to determine requirements to provide reasonable assurance that the levees will perform during a 100-year flood event. The Proposed Action is consistent with these requirements and consists of the following activities:

- North Levee enlargement – increase the height of the levee from Dairy Mart Road for about 2,250 feet by placing embankment fill on the top and the landside slope of the existing levee.
- North Levee embankment protection – place buried riprap below the riverside toe in a localized area near the 90-degree bend in the levee.
- Rodent burrow repair and mitigation – repair damaged levees and prevent additional burrowing of rodents.
- Removal of sediment and debris – remove sediment and debris from the concrete-lined portion of the low flow channel.

Under the No Action Alternative, USIBWC would not rehabilitate the levee system to perform in a 100-year flood. The surrounding communities would remain at risk of flooding.

ES.3 Environmental Consequences

The following resource areas were characterized and evaluated for potential impacts from the Proposed Action and the No Action Alternative.

Water Resources. The Proposed Action would have a beneficial impact on flood control by improving the levee system to control a 100-year flood event. The Proposed Action would not result in changes to hydrology or groundwater resources. Short-term impacts to water quality by released sediment to the river could potentially occur during rehabilitation activities. In the long term, the Proposed Action would

36 reduce erosion and would result in a beneficial impact to water quality by reducing sedimentation at
37 downstream locations.

38 **Biological Resources.** The Proposed Action would have minimal short-term impacts on vegetation
39 within the Tijuana River FCP. Construction activities have the potential to temporarily displace wildlife
40 from noise and increased human disturbance. Best management practices (BMPs) to reduce dust and
41 erosion into the floodplain would further prevent impacts to wildlife species in the area. In addition, the
42 use of BMPs is expected to improve aquatic habitats downstream of the Tijuana River FCP to some
43 extent.

44 Ground squirrel burrow mitigation and ground squirrel control would potentially decrease the population
45 of ground squirrels and could negatively impact foraging opportunities for raptors. However, given the
46 open habitat of the area, other foraging opportunities would not be impacted and would remain available.

47 Increased noise and vibrations from construction and sediment removal activities may disturb the daily
48 activities of the Least Bell's vireo and other migratory birds. BMPs, including dust suppression and
49 erosion control, as well as timing, would prevent adverse effects to the Least Bell's vireo and other
50 migratory birds. Construction activities would occur outside the nesting season (April through July). No
51 impacts to Least Bell's vireo designated critical habitat would occur.

52 **Land Use.** The Proposed Action would be contained within the Tijuana River FCP. There would be no
53 change to existing land use within or adjacent to the project. The Proposed Action would not conflict
54 with land use plans or preclude adjacent or nearby properties from being used for existing activities.
55 Rehabilitation of the levees would protect surrounding residential communities from potential flooding.

56 **Cultural Resources.** The Proposed Action has limited potential to impact cultural resources, since the
57 activities would mostly be surface disturbances. However, based on the considerable frequency of cultural
58 sites on the surrounding terraces above the river, additional prehistoric sites are most likely buried under
59 Tijuana River alluvium, and therefore, modification to the levees or channel sediments that involve
60 deeper excavation may encounter buried cultural deposits including paleontological resources. Cultural
61 resources discovered during excavation would be evaluated for National Register of Historic Places
62 eligibility following their discovery and subject to impact mitigation.

63 **Socioeconomic Resources and Transportation.** The Proposed Action would not cause significant
64 impacts to population, income and employment, or housing in the project area. Rehabilitating the levees
65 to ensure they perform during a 100-year flood and protect surrounding communities would be a
66 beneficial impact on the community of San Ysidro, which has high minority and low-income populations.
67 The Proposed Action could cause a short-term increase in traffic during construction activities. No long-
68 term changes to traffic levels or patterns would occur.

69 **Air Quality.** Potential impacts to air quality from the Proposed Action would be short term in nature and
70 would not be significant. The short-term impacts would occur from construction activities associated with
71 the movement of heavy equipment. Contaminants generated from construction would include increased
72 wind-borne dust (i.e. fugitive dust), particulate matter, and vehicle emissions. BMPs would be
73 implemented to minimize generation of fugitive dust and diesel particulate matter and exhaust emissions.
74 No additional long-term sources of air pollutants would be created by the Proposed Action.

75 **Noise.** Potential noise impacts would be short term and would occur during construction activities
76 associated with the use of heavy equipment. Noise and sound levels would be typical of construction
77 activities and would be intermittent. The noise would be similar to the use of heavy equipment during
78 existing periodic maintenance activities. Noise impacts would be lessened by confining construction
79 activities to normal working hours and employing noise-controlled construction equipment to the extent
80 possible. No new long-term sources of noise would be introduced in the project area.

81 **Public Health and Environmental Hazards.** The Proposed Action would involve the use of motorized
82 equipment containing fuel, oil, grease, and hydraulic fluid. Implementing established industry BMPs for
83 controlling releases of these substances would reduce the possibility of accidental releases of these
84 products. Further, during construction activities, industry BMPs would be utilized to prevent the transport
85 of sediment, trash, or construction debris to prevent impacts to downstream plant, animal, and aquatic
86 communities. Rodenticides may be used to prevent additional rodent burrowing. If used, rodenticides
87 would be applied by a licensed applicator and the appropriate rodenticide would be chosen based on the
88 prevailing conditions. The Tijuana River FCP would continue to be managed in accordance with
89 applicable health and environmental compliance requirements.

90 **Cumulative Impacts.** Cumulative impacts were addressed by considering the impacts of the Proposed
91 Action in combination with impacts from other past, present, and reasonably foreseeable projects. Four
92 actions were identified in this EA as present or reasonably foreseeable. The scope of the cumulative
93 effect analysis involved evaluating impacts to the environmental resource areas cumulatively by
94 geographic and temporal extent in which the effects would be expected to occur. Cumulative impacts are
95 not considered significant.

96 **ES.4 Conclusions**

97 As analyzed and discussed in this EA, direct, indirect, and cumulative impacts of the Proposed Action and
98 the No Action Alternative have been considered, and no significant impacts have been identified.
99 Therefore, issuance of a Finding of No Significant Impact is warranted, and preparation of an
100 environmental impact statement is not required.

101

102 **1.0 INTRODUCTION**

103 The U.S. Section of the International Boundary and Water Commission (USIBWC) proposes to
104 rehabilitate the levee system in the Tijuana River Flood Control Project (FCP). In compliance with the
105 National Environmental Policy Act of 1969, as amended (NEPA; 42 United States Code [U.S.C.] 4321 et
106 seq.) and Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR]
107 Parts 1500 to 1508), USIBWC prepared this *Environmental Assessment for Rehabilitation of the Levee*
108 *System in the Tijuana River Flood Control Project* to evaluate the potential environmental consequences
109 of this project. In compliance with these laws and regulations, this environmental assessment (EA)
110 examines the potential environmental consequences of USIBWC's Proposed Action (that is, rehabilitating
111 the levee system) and No Action Alternative (under which USIBWC would not proceed with the project).
112 The EA's purpose is to inform USIBWC and the public of the potential environmental consequences of
113 the Proposed Action and alternatives.

114 **1.1 Purpose and Need for Action**

115 The USIBWC operates and maintains the Tijuana River FCP, located in southern San Diego County,
116 California (Figure 1). It consists of a levee system that runs along a modified stream channel 2.3 miles
117 long, extending from the international border between the United States and Mexico to the start of the
118 natural Tijuana River channel. The floodway between the North and South levees encompasses
119 approximately 400 acres. The purpose of the Proposed Action is to rehabilitate the two levees to ensure
120 they will perform during a 100-year flood event and protect the surrounding communities.

121 **1.2 Background**

122 **1.2.1 USIBWC Authority**

123 The International Boundary and Water Commission (IBWC), which was known as the International
124 Boundary Commission before 1944, was created by the Convention of 1889 and consists of a United
125 States Section (USIBWC) and a Mexican Section (MxIBWC). The IBWC was established to apply the
126 rights and obligations the Governments of the United States and Mexico assumed under the numerous
127 boundary and water treaties and related agreements. Application of the rights and obligations is
128 accomplished in a way that benefits the social and economic welfare of the people on both sides of the
129 boundary and improves relations between the two countries. The mission of the USIBWC is to provide
130 binational solutions to issues that arise during the application of treaties between the United States and
131 Mexico regarding boundary demarcation, national ownership of waters, sanitation, water quality, and
132 flood control in the border region. The USIBWC was authorized to construct its portion of the
133 international flood control project by the Act of Congress of October 10, 1966, as amended by the Act of
134 Congress of September 28, 1976.

135

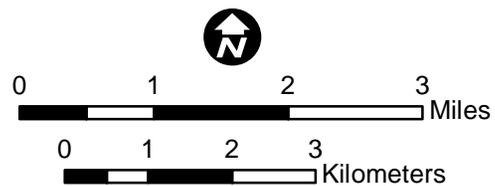


Figure 1. Tijuana River Flood Control Project Location

138 **1.2.2 Flood Control Project Description**

139 The Tijuana River FCP begins in Mexico and provides flood protection to areas in both the United States
140 and Mexico. A concrete-lined channel for the Tijuana River in Mexico extends from the boundary
141 upstream 2.7 miles, and a concrete and rock-lined channel in the United States extends from the boundary
142 downstream 0.9 mile. The downstream portion of the channel in the United States is a flared section to
143 reduce the velocity of flows before discharging into the natural channel below the project. The channel
144 and bordering levees were constructed pursuant to jointly approved design criteria and plans to contain a
145 flood of 135,000 cubic feet per second (cfs). The levees in the United States tie into high ground on the
146 north to protect the community of San Ysidro, and on the south to protect the South Bay International
147 Wastewater Treatment Plant (SBIWTP) and the City of Tijuana. The U.S. levee on the north bank of the
148 river is 2.0 miles in length, and the U.S. levee on the south bank of the river is 1.9 miles in length (Figure
149 2). Each Government constructed and maintains at its cost the part of the project in its territory under the
150 supervision of the IBWC.

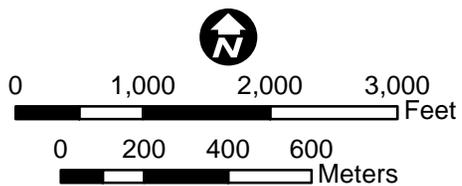
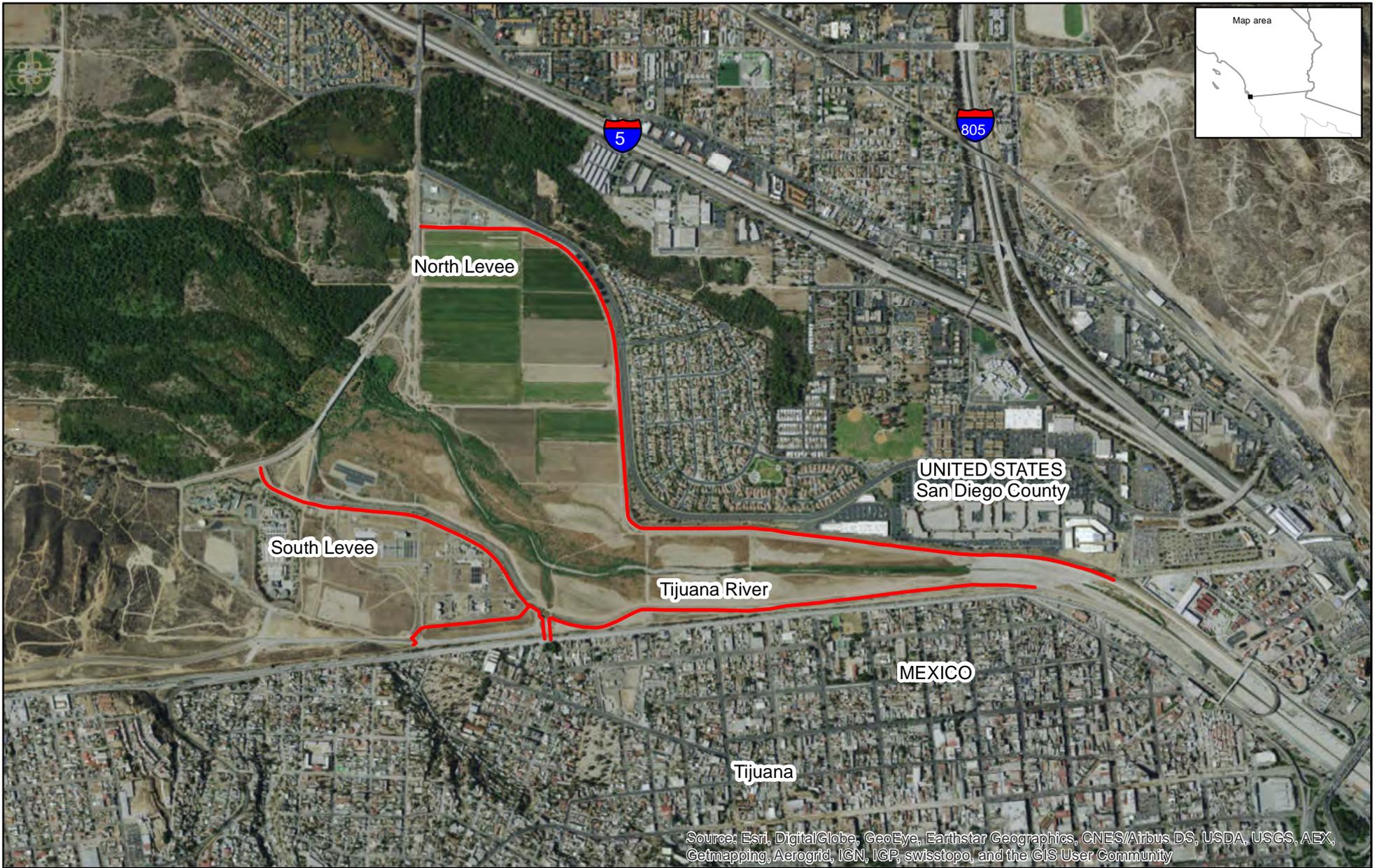
151 **1.2.2.1 History and Development**

152 In 1964, the City of San Diego asked the USIBWC to plan and construct an international flood control
153 project for the Tijuana River to provide flood protection for practically the entire Tijuana River Valley,
154 approximately 4,800 acres, so that these lands could be developed for recreation, urban, and commercial
155 use. The City Council of San Diego adopted resolutions in 1964, 1965, and 1971 endorsing the project
156 and agreeing to participate financially in the U.S. portion of the Tijuana River FCP.

157 On a December 21, 1971 resolution, the City Council suspended support of the channel project because of
158 economic considerations, environmental concerns, and a desire to reconsider future land uses. In October
159 1972, the city asked the USIBWC to provide alternate plans which would eliminate the original concrete-
160 lined channel while satisfying the U.S. obligation to Mexico. The USIBWC, with the assistance of the
161 U.S. Army Corps of Engineers (USACE), submitted alternate plans to the city in February 1973. In
162 October 1973, after public hearings, the city asked the USIBWC to proceed with the alternate plan, which
163 proposed a short segment of concrete channel connecting to the channel in Mexico, a flared energy-
164 dissipating structure, and use of the natural channel to convey flood waters from the structure to the
165 ocean.

166 A draft Environmental Impact Statement (EIS) on the revised plan was circulated in April 1974 and the
167 final statement was dated May 1976. For the U.S. part of the project, the State of California and the City
168 of San Diego acquired and furnished the rights-of-way (ROWs) for the channel and the levees. The
169 USIBWC contracted with the USACE, Los Angeles District, to prepare the plans and supervise the
170 construction of the U.S. part of the project. Mexico began construction in August 1972. The United States
171 began construction in March 1978 and completed it in December 1978. The project was dedicated on
172 January 22, 1979. In 1980, the Tijuana River FCP safely handled the highest flood flows in the Tijuana
173 River since at least 1916, averting property damage and probably loss of life in the United States and
174 Mexico.

175



Legend

— Levee

Figure 2. Levee System in the Tijuana River Flood Control Project

178 In May 2008, USIBWC published the *Final Programmatic Environmental Impact Statement*,
179 *Improvements to the Tijuana River Flood Control Project* (PEIS) to evaluate potential impacts of
180 measures under consideration for improved operation of the flood control project (USIBWC 2008). The
181 PEIS provides guidance for future environmental evaluations of individual improvement projects whose
182 implementation could be possible within a 20-year timeframe. The USIBWC signed the Record of
183 Decision for the PEIS on June 30, 2008. In the ROD, the Multipurpose Project Management Alternative
184 was selected as the preferred option for implementation of improvements to the Tijuana River FCP. In
185 addition, the ROD stated that as improvement projects are developed for implementation, site-specific
186 environmental documentation will be prepared on the basis of the PEIS. This EA tiers from the PEIS.
187 "Tiering" refers to the coverage of general matters in broader environmental impact statements (such as
188 national program or policy statements) with subsequent narrower statements or environmental analyses
189 (such as regional or basinwide program statements or ultimately site-specific statements) incorporating by
190 reference the general discussions and concentrating solely on the issues specific to the statement
191 subsequently prepared (40 CFR Part 1502.20).

192 **1.2.2.2 Description of the Levees in the Tijuana River FCP**

193 The U.S. portion of the project consists of an approximate 1,200-foot concrete channel with the same
194 cross-section as the channel at the Mexican border. This channel segment is followed by a 3,700-foot-
195 long, flared section to reduce the velocity of flows before discharging into the natural channel below the
196 project. The levee system in the United States consists of the North Levee and the South Levee (Figure 2).

197 The North Levee is approximately 2-miles long. The North Levee extends from the international border to
198 the west for 5,400 feet, makes a 90-degree turn north and travels along Camino De La Plaza Road for
199 approximately 4,000 feet, and turns west for approximately 1,200 feet where it terminates at Dairy Mart
200 Road. [Add info regarding type of levee if we know such as shown below for South – concrete vs riprap
201 etc.]

202 The South Levee is approximately 1.9-miles long. The South Levee extends from the international border
203 to Dairy Mart Road. The South Levee was realigned around the SBIWTP when the plant was constructed
204 in the mid-1990s. The segment of the South Levee immediately south of the Dairy Mart Road Bridge was
205 constructed as part of the bridge replacement project in the late-1990s. The South Levee consists of three
206 segments: 1) a concrete-lined section extending approximately 1,200-feet downstream from the
207 international border, 2) a section protected with grouted stone for about 4,000-feet downstream of the
208 concrete-lined section, and 3) a section protected with riprap that was realigned around SBIWTP to Dairy
209 Mart Road, approximately 4,800-feet long.

210 **1.3 Consultations and Public Involvement**

211 **1.3.1 Agency Consultation**

212 In conjunction with the preparation of this EA, and to comply with NEPA, written correspondence will be
213 sent to federal, state, and local agencies with jurisdictions that could possibly be affected by the proposal.
214 In accordance with Section 7 of the Endangered Species Act (ESA), the U.S. Fish and Wildlife Service
215 (USFWS) was consulted. Per Section 106 of the National Historic Preservation Act (NHPA), the
216 California State Historic Preservation Officer (SHPO) was also consulted.

217 [Include information regarding consultations when available and refer to Appendix A.]

218 **1.3.2 Public Involvement**

219 **1.3.2.1 Scoping**

220 On September 22, 2016, USIBWC published a notice of scoping meetings in the San Diego-Tribune
221 newspaper. USIBWC also sent a notification letter to stakeholders to announce the scoping meetings. On
222 September 28, 2016, USIBWC held two scoping meetings at the Tijuana River National Estuarine
223 Research Reserve Training Center, 301 Caspian Way, Imperial Beach, CA 91932. One meeting was held
224 from 3:00 p.m. to 5:00 p.m. and an additional meeting was held from 6:00 p.m. to 8:00 p.m.

225 The purpose of the scoping meetings was early identification of concerns, potential impacts, relevant
226 effects of past actions, and possible alternative actions. At the scoping meetings, staff: (1) discussed the
227 proposed action and alternatives; (2) summarized the environmental issues tentatively identified for
228 analysis in the EA; (3) presented measures to be implemented to protect the environment; (4) solicited
229 from the meeting participants all available information, especially quantifiable data, on the resources at
230 issue; and (5) encouraged statements from experts and the public on issues that should be analyzed in the
231 EA, including viewpoints in opposition to, or in support of, the staff's preliminary views.

232 Interested parties could submit comments during the meetings or to: Wayne Belzer, 4171 N. Mesa, C-
233 100, El Paso, TX 79902 or wayne.belzer@ibwc.gov. USIBWC asked that comments be submitted by
234 October 12, 2016. Eight comments/questions were made during the scoping meetings. Questions were
235 asked about the project design, timing for the implementation, and the approach for ground squirrel
236 control. No additional comments were submitting in writing.

237 **1.3.2.2 Draft EA Review**

238 On **Month Day**, 2016, USIBWC distributed copies of the Draft EA to recipients including state and
239 regulatory agencies (Appendix B). A hard copy of the Draft EA was also made available at the San
240 Ysidro Library, 101 W. San Ysidro Blvd., San Ysidro, CA 92173 for public access and review. In
241 addition, an electronic copy of the Draft EA was posted on the USIBWC website at
242 http://www.ibwc.state.gov/EMD/reports_studies.html#Environ_Assessments. On **Month Day**, 2016, a
243 Notice of Availability was published in the San Diego-Tribune notifying the public of the availability of
244 the Draft EA on the website and in the libraries and initiating the public comment period. Appendix C
245 contains the Notice of Availability for the Draft EA. **[update section based on public comment]**

246 **2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

247 **2.1 Proposed Action**

248 The Proposed Action is to rehabilitate the levee system of the Tijuana River FCP to protect surrounding
249 communities from a 100-year flood. The USIBWC conducted a geotechnical analysis and engineering
250 evaluation of both levees to determine requirements to provide reasonable assurance that the levees will
251 perform during a 100-year flood event (URS 2012a and 2012b). The Proposed Action is consistent with
252 these requirements and consists of the following activities:

- 253 ■ North Levee enlargement
- 254 ■ North Levee embankment protection
- 255 ■ Rodent burrow repair and mitigation
- 256 ■ Removal of sediment and debris

257 **2.1.1 North Levee Enlargement**

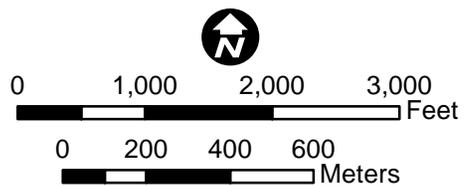
258 The North Levee is deficient in the required freeboard at the westerly end and at one location near the end
259 of the concrete channel. Freeboard of a levee is defined as the height of the levee that extends above the
260 design flood level. It serves as a factor of safety for containing water in the river without overtopping the
261 levee. The area of deficient freeboard extends east from Dairy Mart Road for about 2,250 feet. The levee
262 is deficient by up to 8 feet in height (immediately adjacent to Dairy Mart Road). [add more detailed
263 information on levee enlargement once the hydrological analysis is complete, including addressing the
264 location near the end of the concrete channel that is deficient in freeboard]

265 The Proposed Action would increase the height of the levee by placing embankment fill on the top and
266 the landside slope of the existing levee. The ROW and existing levee crest are sufficiently wide that this
267 can be accomplished without filling beyond the existing riverside slope of the levee. The width of the top
268 of the levee would be a minimum of 24-feet wide. The existing pavement or gravel surfacing on the levee
269 crest would need to be removed prior to placement of the new embankment fills. Pavement or other
270 surfacing would be placed on the levee crest once the embankment is enlarged. Figure 3 shows the area
271 of the levee that would be enlarged.

272 **2.1.2 North Levee Embankment Protection**

273 Erosion continues to persist near the 90-degree bend in the North Levee. To protect the embankment,
274 buried riprap would be placed below the riverside toe in a localized area. Buried riprap would be placed
275 about 18 inches below the ground surface of the levee toe. A 30-inch layer of minimum 0.25-ton riprap
276 (18-inch) is recommended (URS 2012a). The buried riprap would be at least 15-feet wide and extend
277 from the energy dissipator structure to the west and north around the 90-degree bend in the levee, as
278 shown on Figure 4. The riprap would be clean, sound, hard, angular fragments of rock.

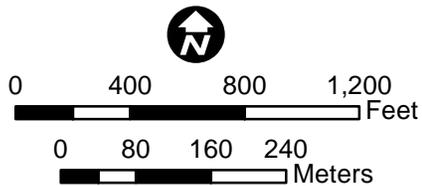
279



Legend

- Levee
- Proposed Area of Levee Enlargement

Figure 3. Proposed Area for North Levee Enlargement



Legend

- Levee
- Proposed Buried Rip Rap

Figure 4. Proposed Area for North Levee Embankment Protection

284 There are two earthen ramps on the riverside slopes at the bend (one at the west end of the bend and one
285 at the east end of the bend) for vehicle access to the paved road at the crest (Figure 4). The access ramp at
286 the east end of the bend is near the intersection of the energy dissipator with the levee. This access berm
287 appears to be constraining flow in this area, which is likely to create eddies against the bank that will
288 continue to cause erosion in this area. The access ramps would be removed from the channelized area of
289 the levee and moved north of the bend in the levee to the floodplain area.

290 **2.1.3 Rodent Burrow Repair and Mitigation**

291 Ground squirrels have damaged both levees by creating burrows. Squirrels are attracted to levees because
292 the higher ground allows them to observe potential predators better from their burrows. USIBWC would
293 repair shallow rodent burrows by re-compacting the surface. For deeper rodent burrows, disturbed soil
294 would be removed and replaced with a properly compacted fill. Measures to prevent additional burrowing
295 may include use of the following:

- 296 ■ Erosion control blankets, woven textiles, turf reinforcement, cellular mats, or other alternative armor
297 materials on the landside slopes.
- 298 ■ Structural or hardened features on riverside slopes, such as riprap, concrete facing, revetment mats,
299 gabions, large gauge wire mesh, and mechanically stabilized earth walls. Hardened features would
300 not be used on landslide slopes so as not to impair levee inspections.
- 301 ■ Bentonite clay slurry grout or a 90 percent/10 percent concrete slurry injection to backfill the rodent
302 holes.
- 303 ■ Rodent control through fumigants, toxicants or bait stations. Examples of fumigants that have been
304 used for ground squirrel control include aluminum phosphide and gas cartridges. Aluminum
305 phosphide is a Restricted Use Pesticide and can only be purchased and applied by a certified pesticide
306 applicator. Zinc phosphide and two anticoagulants, chlorophacinone and diphacinone, are registered
307 for ground squirrel control. Zinc phosphide is also a Restricted Use Pesticide. A certified pesticide
308 applicator would be consulted for specific recommendations.

309 **2.1.4 Removal of Sediment and Debris**

310 Sediments and debris within the concrete-lined portion of the low flow channel leading up to the energy
311 dissipators would be removed (Figure 5). [insert more information when hydrology report is available]

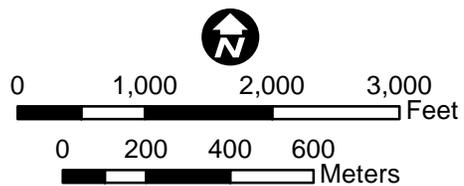
312 **2.2 No Action Alternative**

313 Under the No Action Alternative, USIBWC would not rehabilitate the levee system to perform in a 100-
314 year flood. The surrounding communities would remain at risk of flooding. The No Action Alternative
315 does not meet the purpose and need for action. The inclusion of the No Action Alternative is prescribed
316 by the CEQ regulations implementing NEPA and serves as a benchmark against which the environmental
317 impacts of the action alternatives may be evaluated.

318



Figure 5. Proposed Area for Sediment and Debris Removal



Legend

- Levee
- Proposed Area of Sediment and Debris Removal

322 **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

323 This chapter describes the affected environment and examines the potential environmental impacts of the
324 Proposed Action and the No Action Alternative for the following environmental resource areas:

- 325 ■ Water Resources
- 326 ■ Biological Resources
- 327 ■ Land Use
- 328 ■ Cultural Resources
- 329 ■ Socioeconomics and Transportation, including environmental justice
- 330 ■ Environmental Health, including air quality, noise, and public health and environmental hazards

331 EAs also commonly address the environmental resource areas listed in Table 1. However, consistent with
332 NEPA implementing regulations and guidance, the USIBWC focuses the analysis in an EA on topics with
333 the greatest potential for environmental impacts. This sliding-scale approach is consistent with NEPA [40
334 CFR 1502.2(b)], under which impacts, issues, and related regulatory requirements are investigated and
335 addressed with a degree of effort commensurate with their importance. USIBWC concluded that the
336 proposed project would result in no impacts or negligible impacts to the resource areas identified in Table
337 1 and those resource areas are not considered further in this EA. In terms of the No Action Alternative,
338 the impacts would not occur because the proposed project would not proceed.

339 The focus of the more detailed analyses in this chapter is on those environmental resource areas that
340 would require new or revised permits, have the potential for significant adverse environmental impacts, or
341 have the potential for controversy.

342 **Table 1. Environmental Resource Areas Not Carried Forward**

Environmental Resource Area	Impact Consideration and Conclusions
Geological Resources	The Proposed Action would not expose personnel at the Tijuana FCP site to safety risks associated with earthquake activity or other geologic hazards. The levee rehabilitation activities would all be confined within areas that are currently paved and/or previously disturbed.
Visual Resources	The Tijuana FCP is surrounded by the North and South levees that block from view most of the floodplain and low flow channel of the river. Rehabilitation activities would not change this visual impact and the increase in elevation of the North Levee would provide increase visual obscurity to the residents and businesses to the east of the project area.
Energy Consumption	Energy and water demands at the site currently support agricultural production. The use of these resources would not change under the Proposed Action and therefore, no impacts from the Proposed Action are expected to energy consumption.

343

344 **3.1 Water Resources**

345 **3.1.1 Affected Environment**

346 The Tijuana River is an ephemeral stream that drains a 1,730-square-mile basin situated partly in the
 347 United States and partly in Mexico. Originating in Mexico, the river crosses the international boundary
 348 into the United States near San Ysidro, California, then flows westerly in a broad floodplain about 5.3
 349 miles to discharge into the Pacific Ocean at a point about 1.5 miles north of the boundary. The lower
 350 Tijuana River Valley, where the project area is located, is a relatively wide and flat area confined to the
 351 south by high mesas in Mexico and the north by steep-sloped marine terraces (SWIA 2005). Several
 352 narrow tributary canyons also drain to the lower valley.

353 **3.1.1.1 Flood Control**

354 Upstream of the project area, the Tijuana River flows through 10 miles of concrete-lined levees in Mexico
 355 (USIBWC 2004). After passing the international boundary, the river flows through 1,223 feet of concrete-
 356 lined levees/channel and 1,205 feet of grouted stone levees before entering a broad floodplain. Within the
 357 United States, the levee on the north bank of the river is 2.0 miles in length whereas the levee on the south
 358 bank of the river is 1.9 miles in length. The levees tie into high ground on the north to protect the
 359 community of San Ysidro. The South Levee protects the SBIWTP and the City of Tijuana, Baja
 360 California. Downstream of the concrete and grouted stone levees the river enters a broad floodplain that
 361 reduces the velocity of flows. During periods of low flow, the river flows within a natural channel within
 362 this floodplain. The levees adjacent to the floodplain are constructed of compacted fill that consists
 363 predominantly of silty sand. Much of the floodplain area between the grouted stone levees and Dairy Mart
 364 Road is cultivated.

365 To moderate the accelerated flows produced by the concrete channel, USACE in the 1970s constructed a
 366 dissipator system to decrease water flow velocity by distributing it over a large area, allowing the river to
 367 conform to its natural course below the concrete-lined section (SWIA 2005).



Energy dissipator between the North and South levees.

368
369

370 Executive Order (EO) 11988 requires federal agencies to avoid to the extent possible the long- and short-
371 term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct
372 and indirect support of floodplain development wherever there is a practicable alternative.

373 **3.1.1.2 Hydrology**

374 The east-west-trending Tijuana River Watershed shared between the United States and Mexico flows
375 from the elevated region in the east toward the Tijuana River Estuary west of the project site (Figure 6).
376 The watershed is approximately 1,750 square miles, with approximately 27 percent or 470 square miles
377 located in the United States. Elevation ranges from 6,380 feet above mean sea level (MSL) to 0 feet MSL.
378 A significant volume of the surface flow consists of runoff from seasonal precipitation that predominantly
379 occurs during the winter and spring months (SDIRWMP 2013). Surface water flows during the summer
380 and fall months are typically low, consisting of urban runoff, agricultural runoff, and surfacing
381 groundwater. Other freshwater inputs to the river include releases from the Morena Reservoir, the Barrett
382 Reservoir, and the Rodriguez Dam on Rio de las Palmas (SWIA 2005).

383 In addition, diversion structures in Tijuana divert river water during low flows to the SBIWTP adjacent to
384 the project area as well as other sewage treatment plants in the United States. However, during periods of
385 high flow, the diversion structures can be overwhelmed, allowing sewage and fresh water to be
386 discharged to the river and ultimately the estuary and ocean (SWIA 2005).

387 Annual and monthly stream flows within the Tijuana River are highly variable. Mean annual discharges
388 are about 0.85 cubic meters per second with the largest recorded flow on record being 2,123.25 cubic
389 meters per second in 1916 (SWIA 2005). Records dating back to 1973 indicate that the Tijuana River
390 experiences high and low flows as frequently as intermediate flows (SWIA 2005).

391 **3.1.1.3 Groundwater Resources**

392 The project area is located within the Tijuana Groundwater Basin. The southern boundary is the
393 international border with Mexico, the eastern and northern boundaries are the contacts with semi-
394 permeable Pleistocene and Pliocene marine deposits, and the western boundary is the Pacific Ocean
395 (California DWR 2006).

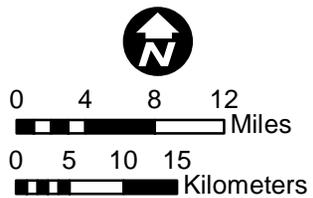
396 The basin's water-bearing units include Recent and Quaternary alluvium and the San Diego Formation.
397 The Recent and Quaternary alluvium, consisting of river and stream deposits of gravel, sand, silt and clay,
398 is the most productive unit in the basin. The alluvium is less than 150 feet thick with an average thickness
399 of 80 feet. Average well yields are 1,000 gallons per minute (gpm) to yields as great as 2,000 gpm.
400 Groundwater within the alluvium is unconfined (California DWR 2006).

401 The San Diego Formation consists of Pliocene age well-sorted, medium to coarse sand, silty and clayey
402 sand, sandy silt and sandy clay. The unit's thickness ranges to at least 1,700 feet and well yields average
403 about 350 gpm to as high as 1,000 gpm. Groundwater within this unit is confined (California DWR
404 2006).

405



Figure 6. Tijuana River Watershed



410 The basin is recharged by the Tijuana River and controlled releases from the Barrett and Morena
411 Reservoirs in San Diego County and Rodriguez Reservoir in Mexico. Irrigation waters and septic tanks
412 also contribute to recharge with irrigation water accounting for more than one third of the recharge in the
413 basin (California DWR 2006).

414 The porous nature of the alluvium allows it to be quickly recharged by stormwater or urban runoff,
415 making it susceptible to contamination by activities on the ground surface and infiltration of contaminated
416 stormwater (SDIRWMP 2013).

417 A key water quality issue for the Tijuana Basin groundwater is total dissolved solids (TDS). The Lower
418 Tijuana River has experienced significant degradation from elevated TDS concentrations, with
419 concentrations ranging from 500 to 3,000 milligrams per liter. TDS can affect both the usability of
420 groundwater as a domestic water source and as an irrigation water source.

421 **3.1.1.4 Water Quality**

422 Tables 2 and 3 summarize region-wide water quality issues and constituents of concern for inland surface
423 waters and coastal waters for the Tijuana watershed. Of the 11 San Diego watersheds, the Tijuana
424 Watershed has the greatest number of water quality issues (SDIRWMP 2013). Key water quality issues
425 for the Tijuana Watershed include sediment and turbidity, indicator bacteria, nutrients, salinity, toxic
426 inorganic compounds, and toxic organic compounds. Additional discussion is provided in the *2013 San*
427 *Diego Integrated Regional Water Management Plan* (SDIRWMP 2013).

428 Even the smallest rainfall events contribute to sediment flows from the unvegetated hillsides located
429 adjacent to the river in the United States and Mexico that negatively impact the river with sediment and
430 turbidity. Sediment can adversely affect the hydraulics of the Tijuana Estuary, decrease tidal flushing, and
431 contribute to the transport of bacteria. Observed elevated coliform bacteria concentrations have occurred
432 as a result of stormwater runoff, urban runoff, and sewer spills. Nutrients are of particular concern in
433 Tijuana River Watershed because discharges to the Tijuana Estuary of elevated concentrations of nitrogen
434 and phosphorus can result in algal blooms and fish kills caused by decreased oxygen levels.

435 Salinity, measured as TDS and dissolved mineral constituents, varies significantly during periods of high
436 and low flow, and can adversely impact aquatic and wildlife habitat and the usability of water for
437 municipal and irrigation supply. Toxic inorganic compounds, including metals, nitrates, cyanide and
438 unionized ammonia, in the watershed's surface waters originate from non-point sources and also
439 adversely impact aquatic habitat, wildlife habitat, and water supply uses. Toxic organic compounds, also
440 presumed to originate from non-point sources, can adversely impact aquatic habitat, wildlife habitat, and
441 water supply uses.

442 **Table 2. High Priority Constituents of Concern for the Tijuana Watershed as Determined**
 443 **by the San Diego County Comprehensive Receiving Waters and Urban Runoff Regional**
 444 **Monitoring Effort**

Watershed	Dry Weather Priority Pollutants	Wet Weather Priority Pollutants
Tijuana River	<ul style="list-style-type: none"> • Enterococcus • Ammonia as nitrogen • Turbidity • Total nitrogen • Dissolved phosphorus • Total phosphorus • Total dissolved solids • <i>Ceriodaphnia dubia</i> (<i>C. dubia</i>) reproduction 	<ul style="list-style-type: none"> • Fecal coliform • Biochemical oxygen demand • Chemical oxygen demand • Total suspended solids • Turbidity • Dissolved phosphorus • Total phosphorus • Total dissolved solids • Diazinon • Bifenthrin • Permethrin • <i>C. dubia</i> acute survival • <i>C. dubia</i> chronic survival • <i>C. dubia</i> reproduction • <i>Hyalella azteca</i> acute survival

Source: California Department of Water Resources 2006; Table 3-28

445 **Table 3. Summary of Water Quality Issues for Tijuana Watershed Surface Water**

Water Quality Issues/Constituents of Concern for Tijuana Watershed								
Trash and Debris	Fecal Indicator Bacteria	Nutrients	Dissolved Oxygen	Turbidity	Sediment	Toxic Organics	Metals	Total Dissolved Solids (TDS)
✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: : California DWR 2006; Table 3-29

446 **3.1.2 Environmental Consequences**

447 **3.1.2.1 Proposed Action**

448 Potential impacts to water resources, including hydrology and groundwater, are evaluated with respect for
 449 the potential to impact flood control, irreversibly diminish water quality, or endanger public health by
 450 creating or worsening adverse health hazard conditions.

451 The Proposed Action would have a beneficial impact on flood control. Improvements to the levee system
 452 to mitigate deficient freeboard would increase flood containment capacity to control a 100-year flood
 453 event. Embankment protection, levee enlargement, sediment and debris removal, and rodent burrow
 454 repair would increase the ability to control floodwaters.

455 The Proposed Action would not result in changes to hydrology or groundwater resources. Embankment
 456 protection, levee enlargement, and removal of sediment and debris have the potential to cause short-term

457 impacts to water quality by releasing sediment to the river, especially if the activities are performed
458 during periods of moderate to high flow.

459 In the long term, the placement of buried riprap near the 90-degree bend in the North would reduce
460 erosion that occurs at that location. This would result in a beneficial impact to water quality by reducing
461 sedimentation at downstream locations. The removal of sediment and debris in the low flow channel
462 would have no impact to water quality as low flow velocity does not move sediment through the river.
463 [Discuss levee footprint expansion if this is being done and new modeling data as appropriate]

464 3.1.2.2 No Action Alternative

465 Under the No Action Alternative, deficient freeboard would not be mitigated and flood containment
466 capacity would continue to be diminished. Not repairing rodent burrows would cause further deterioration
467 and weakening of the levees, posing a risk to flood control and public health and safety. Hydrology and
468 water quality would be negatively impacted by continued sedimentation, particularly in the areas of the
469 energy dissipater structure. No changes to groundwater resources would be expected.

470 3.2 Biological Resources

471 3.2.1 Affected Environment

472 Biological resources in the Tijuana River FCP area have been described in the *Biological Resources*
473 *Survey, Rio Grande and Tijuana River Flood Control Projects, New Mexico, Texas and California* (CDM
474 2005); the *Final Supplemental Environmental Impact Statement, Clean Water Act Compliance at the*
475 *South Bay International Wastewater Treatment Plant* (USIBWC 2005); the *Final Programmatic*
476 *Environmental Impact Statement- Improvements to the Tijuana River Flood Control Project* (USIBWC
477 2008); and the *Tijuana River Valley Existing Conditions Report* (TRNERR 2014). Information from these
478 documents is incorporated by reference.

479 3.2.1.1 Vegetation

480 The Tijuana River FCP is part of the warm-temperate scrublands biotic community historically dominated
481 by riparian vegetation and the coastal sage scrub/chaparral communities. Coastal sage scrub extends along
482 the entire coastline of San Diego County, except for urban and developed areas and some small coastal
483 cypress/pine areas, salt marshes, and other non-scrub areas. The most common species in the coastal sage
484 scrub community are California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum*
485 *fasciculatum*), white sage (*Salvia apiana*), laurel sumac (*Rhus laurina*), and black sage (*Salvia mellifera*)
486 (CDM 2005). Riparian communities tend to be comprised of Fremont cottonwood (*Populus fremontii*),
487 Gooding's black willow (*Salix goodingii*), and arroyo willow (*Salix lasiolepis*) with an understory of
488 shrubby arroyo willows and mule fat (*Baccharis salicifolia*) (USIBWC 2008).

489 The Tijuana River is considered ephemeral and the low-flow channel is normally dry as dry-weather
490 flows are currently intercepted at the border for treatment at the USIBWC-operated SBIWTP. Despite the
491 ephemeral nature of the Tijuana River, development of riparian vegetation is possible as represented in
492 areas immediately to the west of the Tijuana River FCP (USIBWC 2008). Vegetation within the Tijuana
493 River FCP has been impacted by urban development, agricultural practices, and vegetation clearing for

494 U.S. Border Patrol operations. The northern portion of the Tijuana River FCP as well as lands to the east
495 of the North Levee, have been under agricultural production since 1953 (USIBWC 2008). As recently as
496 1980, the agricultural areas extended to the east of the current Tijuana River FCP, and at the same time,
497 the area to the east of the current Tijuana River FCP has been developed into the community of San
498 Ysidro. Currently, the vegetation within the Tijuana River FCP may be considered non-native grasslands
499 or disturbed/ruderal communities (USIBWC 2008). Non-native grasslands are generally represented by
500 species such as mustards (*Brassica* spp.), Russian thistle (*Salsola tragus*) and ruderal communities are
501 generally represented by patches of bare ground and species such as Russian thistle, mustards and crown
502 daisy (*Chrysanthemum coronarium*). Within the Tijuana River FCP, vegetation is generally kept at less
503 than 2-feet tall for flood control purposes (USIBWC 2008).

504 The SBIWTP site to the west of the South Levee contains developed land, disturbed non-native grassland,
505 and disturbed/ruderal land. The non-native grassland is a sensitive vegetation community according to the
506 City of San Diego because it provides foraging habitat for raptors (CDM 2005) even though it is not
507 dominated by native plants.

508 **3.2.1.2 Wildlife**

509 Focus surveys for herpetofauna, mammal, and avian species have not been conducted on the Tijuana
510 River FCP. Potential species in the vicinity of the Tijuana River FCP are based on reports and surveys
511 from the Tijuana River National Estuarine Research Reserve (TRNERR) and the Tijuana River Valley
512 Regional Park.

513 ***Reptiles and amphibians***

514 The TRNERR northwest of the Tijuana River FCP provides habitat to a variety of reptiles and
515 amphibians. In surveys conducted in habitats surrounding the Tijuana River FCP the most commonly
516 captured species included: Western fence lizard (*Sceloporus occidentalis*), orange throated whiptail
517 (*Cnemidophorus hyperythrus*), Western skink (*Eumeces skiltonianus*), side-blotched lizard (*Uta*
518 *stansburiana*), striped racer (*Masticophis lateralis*), and California king snake (*Lampropeltis getula*)
519 (Fisher and Case 2000). Western fence lizards prefer grassland habitat and side-blotched lizards open
520 habitat with rock and may occur within the Tijuana River FCP. Just north of the Tijuana River FCP,
521 gopher snakes were also documented in a wide variety of habitats (Joshi 2015) and may occur within the
522 Tijuana River FCP. Riparian and freshwater ponds support species such as the Pacific slender salamander
523 (*Batrachoseps pacificus*), Pacific treefrog (*Hyla regilla*), and non-native American bullfrogs (*Rana*
524 *catesbiana*).

525 ***Mammals***

526 Several species of small mammals occur in disturbed grassland and ruderal communities and are likely
527 found within the Tijuana River FCP. These species include California jackrabbit (*Lepus californicus*),
528 desert cottontail (*Sylvilagus auduboni*), and California ground squirrel (*Spermophilus beechyi*), as
529 well as several rat and mice species. Mesocarnivores in the area include striped skunk (*Mephitis*
530 *mephitis*), the long-tailed weasel (*Mustela frenata*), raccoon (*Procyon lotor*), Virginia opossum

531 (*Didelphis virginia*), and coyote (*Canis latrans*). These species are highly adaptable and tolerate both
532 disturbed habitats and human disturbance.

533 **Birds**

534 Grassland and disturbed ecosystems provide habitat for small mammals which raptors rely on for
535 foraging. Several raptor species have been documented in or near the Tijuana River FCP area including:
536 Cooper’s hawk (*Accipiter cooperii*), Northern harrier (*Circus cyaneus*), red-tailed hawks (*Buteo*
537 *jamaicensis*), red-shoulder hawks (*Buteo lineatus*; Joshi 2015), and white-tailed kites (*Elanus leucurus*).
538 Raptors are protected as special status under the Migratory Treaty Bird Act, and the white-tailed kite is a
539 USFWS migratory non-game bird of management concern, and a California Fully Protected Species (San
540 Diego County Water Authority 2008). No known bald eagle nesting territories have been documented in
541 the project area, and the available habitat does not support bald eagle foraging or nesting. The project area
542 also does not support habitat for nesting golden eagles.

543 Over 370 avian species, both resident and migratory, have been reported in the area of the Tijuana
544 Estuary northwest of the Tijuana River FCP. Riparian habitat and ponds provides nesting and foraging for
545 shorebirds and waterfowl such as the Northern pintail, American widgeon, willet and black-necked stilt.
546 Other common birds found throughout the year in the area include Anna’s hummingbird (*Calypte anna*),
547 Yellow-rumped warbler (*Dendroica coronata*), Northern mockingbird (*Mimus polyglottos*), black phoebe
548 (*Sayornis nigricans*), and song sparrow (*Melospiza melodia*) (USFWS 1999; Joshi 2015).

549 **3.2.1.3 Threatened and Endangered Species**

550 USIBWC accessed the USFWS Information, Planning, and Conservation Online system
551 (<http://ecos.fws.gov/ipac/>) on 19 October 2016 to determine if any federally-listed species potentially
552 occur in the vicinity of the Proposed Action. The following species are federally listed in San Diego
553 County (Table 4).

554 **Table 4. Federally Listed, Proposed, and Candidate Species and their State Listing**
555 **Known to or That May Occur in San Diego County, California**

Common Name	Scientific Name	Listing	Habitat Preference
Crustaceans			
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	FE	Vernal pools, ponds and other ephemeral pool-like bodies of water
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	FE	Vernal pools, ponds and other ephemeral pool-like bodies of water
Insects			
Quino checkerspot butterfly	<i>Euphydryas editha quino</i> (= <i>E. e. wrighti</i>)	FE	Patchy scrublands
Birds			
California least tern	<i>Sterna antillarum browni</i>	FE/SE	Coastal areas and open beaches
Coastal California gnatcatcher	<i>Poliophtila californica californica</i>	FT	Coastal sage scrub habitats
Least Bell’s vireo*	<i>Vireo bellii pusillus</i>	FE/SE	Willow-dominated riparian habitats for breeding
Light-footed clapper rail	<i>Rallus longirostris levipes</i>	FE/SE	Coastal salt marshes

Common Name	Scientific Name	Listing	Habitat Preference
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE/SE	Dense riparian habitats
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT	Flat, open coastal beaches, in dunes, and near stream mouths
Mammals			
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	FE	Predominantly found on sandy substrates within coastal sage scrub habitats
Flowering Plants			
California orcutt grass	<i>Orcuttia californica</i>	FE/SE	Vernal pools
Otay Mesa-mint	<i>Pogogyne nudiuscula</i>	FE/SE	Vernal pools on coastal mesas
Otay tarplant	<i>Deinandra (=Hemizonia) conjugens</i>	FT/SE	Open coastal sage scrub and native and non-native grasslands in clay soils
Salt marsh bird's-beak	<i>Cordylanthus maritimus ssp. maritimus</i>	FE	Salt marsh
San Diego ambrosia	<i>Ambrosia pumila</i>	FE	Upper terraces of rivers and drainages
San Diego button-celery	<i>Eryngium aristulatum var. parishii</i>	FE/SE	Vernal pools
San Diego thornmint	<i>Acanthomintha ilicifolia</i>	FT/SE	Restricted to gabbro soils within coastal sage scrub, chaparral, and native grassland
Spreading navarretia	<i>Navarretia fossalis</i>	FT	Freshwater-marsh, vernal-pools

556 FT = Federally Threatened FE = Federally Endangered * = designated critical habitat in study area
 557 ST = State Threatened SE = State Endangered
 558

559 Riverside fairy shrimp are generally restricted to vernal pools and other non-vegetated ephemeral (i.e.,
 560 containing water a short time) pools greater than 12 inches in depth in Riverside, Orange, and San Diego
 561 counties in southern California, and northwestern Baja California, Mexico. Populations have been
 562 documented east of I-5 and the project site in Otay Mesa. Riverside fairy shrimp generally occur in
 563 groups of vernal pools referred to as vernal pool complexes. San Diego fairy shrimp are generally
 564 restricted to vernal pools and other non-vegetated ephemeral (i.e., containing water a short time) basins 2
 565 to 12 inches in depth in coastal southern California and northwestern Baja California, Mexico. Occupied
 566 vernal pool complexes for the San Diego fairy shrimp occur east of I-5 in Otay Mesa and one occurrence
 567 in the Tijuana Slough National Wildlife Refuge. Following winter rainstorms, vernal pools form in
 568 depressions above an impervious soil layer or layers. Water evaporates from these pools during the spring
 569 and early summer. Vernal pools within a complex are generally hydrologically connected, such that water
 570 flows over the surface from one vernal pool to another and/or water flows and collects below ground such
 571 that the soil becomes saturated with water, thus filling the vernal pool with water. The entire floodplain of
 572 the Tijuana River in the study area is highly disturbed and large portions of the floodplain are farmed at
 573 various times. Vernal pool complexes do not exist in the levee area of the Proposed Action and therefore
 574 impacts to fairy shrimp are not expected.

575 Quino checkerspot butterfly's historical range included much of non-montane southern California:
 576 southwestern Ventura, southwestern San Bernardino, Los Angeles, Western Riverside, and San Diego
 577 counties. Quino habitat is characterized by patchy shrub or small tree landscapes with openings of several
 578 meters between large plants, or a landscape of open swales alternating with dense patches of shrubs.
 579 Current occurrences complexes (estimators of approximate population location and population

580 membership) for the species are located in the Otay Mesa area east of the project site. This species is
581 unlikely to exist in the project area due to lack of habitat.

582 California least terns are the smallest of the North American terns living along the coast. This species
583 nests in open beaches free of vegetation, and nesting is currently limited to colonies in San Francisco Bay,
584 Sacramento River delta, and areas along the coast from San Luis Obispo County to San Diego County.
585 Least terns need cleared, sandy areas for nesting and depend on estuaries, lagoons, and other open water
586 areas for hunting small fish. Terns are known to occur in the Tijuana Slough National Wildlife Refuge
587 northwest of the project area.

588 The coastal California gnatcatcher is found only in coastal sage scrub generally dominated by California
589 sagebrush, buckwheat, salvia, and prickly-pear cactus. The gnatcatcher forages through the shrubs and
590 low trees searching for insects. Critical habitat lies east of the project area and this species has been
591 known to occur in the Tijuana Slough National Wildlife Refuge.

592 Light-footed clapper rails prefer to nest in tidal marshes dominated by cordgrass. There are an estimated
593 100 pairs in San Diego County with breeding populations scattered throughout coastal lagoons and
594 estuaries. The Tijuana River estuary is an especially critical site, supporting a record 80 pairs in 1999.

595 The Southwestern willow flycatcher is one of four currently recognized subspecies of the willow
596 flycatcher. The subspecies typically occurs in dense riparian vegetation on moist soils near slow-moving
597 or swampy water. In many cases, nest plants are rooted in or overhang standing water, and occupied sites
598 are typically located along slow-moving stream reaches, at river backwaters, in swampy abandoned
599 channels and oxbows, marshes, and at the margins of impounded water (e.g., beaver ponds, inflows of
600 streams into reservoirs). Critical habitat for the flycatcher has been designated but does not occur within
601 the project area.

602 The Western snowy plover is a threatened small shorebird. The species nests in a shallow scrape in sand,
603 usually lined with small pebbles and shells along the shores, peninsulas, offshore islands, bays, estuaries,
604 and rivers of the Pacific Coast. Snowy plovers are year round residents of San Diego County and nest
605 along the coastline with breeding concentrations in Camp Pendleton and the Silver Strand.

606 Within the Tijuana River Valley Regional Park, state and federally endangered species include migrant
607 individuals of the southwestern willow flycatcher, pairs of the light-footed clapper rail within the ponds to
608 the west of Dairy Mart Road, and breeding populations of Coastal California gnatcatchers in the upland
609 areas (CDM 2005). Habitat for these five avian species does not occur in the disturbed habitats of the
610 Tijuana River FCP and therefore no impacts from the Proposed Action are expected.

611 The final avian species that has the potential to occur in the project area is the Least Bell's vireo. This
612 species is the western-most subspecies, breeding entirely within California and northern Baja California.
613 Vireos can occupy a variety of habitats during the winter including mesquite scrub within arroyos, palm
614 groves, and hedgerows bordering agricultural and residential areas; however, breeding habitat is restricted
615 to willow-dominate riparian areas. Early to mid-successional riparian habitat is typically used for nesting
616 by the Least Bell's vireo because it supports the dense shrub cover required for nest concealment as well
617 as a structurally diverse canopy for foraging. Critical habitat for this species occurs at the north end of the
618 project area (Figure 7) and breeding populations of the Least Bell's vireo occur within the County of San



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, ICP, swisstopo, and the GIS User Community



Figure 7. Location of Least Bell's Vireo critical habitat in relation to the Tijuana River Flood Control Project

622 Diego Tijuana River Valley Regional Park. Designated critical habitat extends south of Dairy Mart Road
623 and south of Camino de la Plaza however, no habitat for the vireo occurs within this portion of the
624 floodplain of the Tijuana River. Although the Tijuana River FCP lacks suitable habitat for the Least
625 Bell's vireo, critical habitat and potential habitat occur just to the north of the project area; therefore, this
626 species is considered further in the analysis.

627 The Pacific pocket mouse is endemic to the coast of southern California. This subspecies of pocket mouse
628 historically occupied coastal strand, coastal dunes, river alluvium, and coastal sage scrub habitats
629 2.5 miles of the ocean. The species is currently restricted to coastal sage scrub habitat. The Pacific pocket
630 mouse distribution is very limited in southern California with four known populations documented since
631 its listing in 1994. Habitat for this species does not occur within the project area and therefore no impacts
632 to this species are expected.

633 Eight listed plant species were listed as potentially occurring in the Tijuana River FCP area.

634 California Orcutt grass is a tufted annual grass restricted to vernal pools in southern California and a few
635 occurrences in northern Baja California, Mexico. At the time of listing, *O. californica* was thought to be
636 restricted to four general localities: the Santa Rosa Plateau, Skunk Hollow, and Salt Creek (now
637 identified as the Stowe Pools) in Riverside County, and Otay Mesa in San Diego County. The species was
638 likely never widespread, compared to other obligate plant species, because deeper pools with longer
639 inundation times (longer seasonal ponding) are less common in southern California. Preferred habitat for
640 this species does not occur in the project area and therefore no impacts are expected.

641 Otay Mesa-mint is restricted to vernal pools and has been documented east of the project area in Otay
642 Mesa. It is often found with other federally listed species, including San Diego button-celery, California
643 Orcutt grass, and Riverside fairy shrimp. Habitat for this species does not occur within the Tijuana River
644 FCP; therefore, no impacts are expected.

645 Otay tarplant has a narrow ecological distribution and is endemic to southwestern San Diego County,
646 California, and northwestern Baja California, Mexico. Known populations occur north of the project area.
647 The species' distribution is strongly correlated to clay soils found in much of the Otay Ranch's Otay
648 Valley Parcel (in eastern Chula Vista), and Otay Mesa (south of the Otay River and west of Otay
649 Mountain) east of the project area. Populations occur in open coastal sage scrub and native and non-native
650 grasslands; habitat is not found in the Tijuana River FCP.

651 Salt marsh bird's-beak is a hemiparasitic halophyte found in disjunct coastal salt marshes of southern and
652 central California and adjacent northern Baja California, Mexico. Plants have naturally patchy
653 distributions in sites subject to only higher tidal influxes in coastal salt marshes. This species has been
654 documented in the Tijuana estuary. The Tijuana River FCP does not support salt marshes and therefore
655 this species would not be impacted by the Proposed Action.

656 San Diego ambrosia is found primarily on upper terraces of rivers and drainages; however, several
657 patches of the plant occur within the watershed of a large vernal (ephemeral) pool at the Barry Jones
658 (Skunk Hollow) Wetland Mitigation Bank in Riverside County. Current distribution of extant population
659 of the species occurs east of the Tijuana River FCP.

660 San Diego button-celery currently occurs in 14 geographic areas in Riverside and San Diego counties.
661 Although the species can be locally abundant, the loss of vernal pool habitat in San Diego County has
662 dramatically decreased the distribution of San Diego button-celery. The closest known population occurs
663 east of the Tijuana River FCP in the Otay Mesa. This species is not likely to occur in the Tijuana River
664 FCP due to lack of preferred habitat.

665 San Diego thornmint is restricted to gabbro soils derived from igneous rock, and gray calcareous clay
666 soils derived from soft calcareous sandstone and is endemic to San Diego County and northwestern Baja
667 California, Mexico. Current populations are located north and east of the project area. Preferred habitat
668 for the species includes openings within coastal sage scrub, chaparral, and native grassland on gentle
669 southeast to west facing slopes. This species does not occur in the project area and would not be impacted
670 by the Proposed Action.

671 In San Diego County, Spreading navarretia is typically found in vernal pools. In western Riverside
672 County however, the species is associated with seasonally flooded alkali vernal plain habitat that includes
673 alkali playa (highly alkaline, poorly drained), alkali scrub, alkali vernal pool, and alkali annual grassland
674 components. The majority of the populations of spreading navarretia at the time of listing were
675 concentrated at three locations: Otay Mesa in southern San Diego County, alongside the San Jacinto River
676 in western Riverside County, and near Hemet in western Riverside County. Current distributions are well
677 to the north and east of the project area and therefore no impacts to this species are expected.

678 In addition to the federally listed species, there are species present in the area of the Tijuana River FCP
679 that are listed as state species of concern. Breeding avian populations known to occur in the Tijuana River
680 Valley Regional Park immediately downstream of the Tijuana River FCP include the yellow warbler
681 (*Dendroica petechia*) and the yellow-breasted chat (*Icteria virens*), both California Species of Concern
682 (CSC) (USIBWC 2008; San Diego County Water Authority 2008). These species both occur in riparian
683 areas not found within the Tijuana River FCP. In addition, Belding's savannah sparrow (*Passerculus*
684 *sandwichensis beldingi*) is listed as endangered in the State of California and is known to nest in the
685 estuary (TRNERR 2010). The upland areas of the Tijuana River Valley Regional Park support breeding
686 populations of the CSC rufous-crowned sparrow (*Aimophila ruficeps canescens*) (USIBWC 2008).
687 Two CSC, the Coronado skink (*Eumeces skiltonianus interparietalis*), and the San Diego horned lizard
688 (*Phrynosoma coronatum blainvillei*), are known to occur in the TRNERR (TRNERR 2014).

689 The Baja California birdbush (*Ornithostaphylos oppositifolia*), a state threatened species, occurs in the
690 Tijuana River Valley Regional Park adjacent to the Tijuana River FCP (CDFW 2016). Other rare plant
691 species that may be found in the general vicinity of the Tijuana River FCP where the coastal salt marsh
692 and coastal sage scrub native plant communities are present include goldenspined cereus (*Bergerocactus*
693 *emoryi*), sea dahlia (*Leptosyne maritima*), Orcutt's bird's-beak (*Dicranostegia orcuttiana*), and
694 wartstemmed ceanothus (*Ceanothus verrucosus*) (CDM 2005). Other sensitive plant species that may
695 occur in the surrounding area include: golden-spined cereus (*Bergerocactus emoryi*), wart-stemmed
696 ceanothus (*Ceanothus verrucosus*), cliff spurge (*Euphorbia misera*), and San Diego barrel cactus
697 (*Ferocactus viridescens*) (USIBWC 2005).

698 **3.2.1.4 Aquatic Ecosystems**

699 The Tijuana River can be characterized as an ephemeral, braided alluvial stream that shifts widely across
700 the valley floor during flood stage (USIBWC 2008). As such, freshwater aquatic ecosystems and fisheries
701 are limited in the Tijuana River FCP and have not been well described. Marine aquatic resources in the
702 area, but not within the Proposed Action area, include the Tijuana estuary. The estuary supports a diverse
703 population of fish species including topmelt (*Atherinops affinis*), longjaw mudsucker (*Gillichthys*
704 *mirabilis*), arrow goby (*Clevelandia ios*), California killifish (*Fundulus parvipinnis*), and striped mullet
705 (*Mugil cepalus*; TRNERR 2010). In addition, the estuary provides nursery habitat for commercial and
706 sport fisheries.

707 **3.2.1.5 Unique or Sensitive Areas**

708 Non-native grasslands are considered a sensitive biological resource because they provide foraging
709 habitat for raptors such as red-tailed hawks, red-shoulder hawks, and white-tailed kites (USIBWC 2005).
710 This habitat is found on the SBIWTP property (USIBWC 2005) and some throughout the Tijuana River
711 FCP. Non-native grasslands are generally dominated by wild oat (*Avena fatua*), ripgut brome (*Bromus*
712 *diandrus*), foxtail chess (*Bromus madritensis ssp. rubens*), rye-grasses (*Lolium* spp.), and fescues (*Vulpia*
713 spp.), with non-native grasses comprising 50 percent or more of the cover during the growing season
714 (USIBWC 2008).

715 The Tijuana Estuary is located about 1 mile west of the Tijuana River FCP. The estuary was designated a
716 National Estuarine Research Reserve in 1982 and contains 2,531 acres of tidally flushed wetlands,
717 riparian lands, and upland habitats (CDM 2005). In February of 2005 the estuary was designated a
718 “Wetland of International Importance Within the Nation” by the Convention on Wetlands of International
719 Importance, better known as the Ramsar Convention. The 1,051-acre Tijuana Slough National Wildlife
720 Refuge is contained within the TRNERR (CDM 2005). The Multiple Species Conservation Plan (MSCP)
721 for San Diego is designed to identify lands that would conserve habitat for federal and state endangered,
722 threatened, or sensitive species. These lands have been determined to provide the necessary habitat
723 quantity, quality, and connectivity to sustain the unique biodiversity of the San Diego region (USIBWC
724 2005). The Tijuana River Valley’s Multi-Habitat Planning Area (MHPA) delineates core biological
725 resource areas and corridors targeted for conservation, incorporating the 25-year floodplain within the
726 City’s jurisdiction and much of the 100-year floodplain in the valley (TRNERR 2014). The MHPA lands
727 are considered by the City to be sensitive biological resources.

728 Riparian areas are considered sensitive habitats because of the large number of species they support.
729 There are well-developed riparian areas downstream of the Tijuana River FCP; however the Tijuana
730 River FCP is mowed frequently to prevent the establishment of woody vegetation, including riparian
731 species such as willow or mule fat and no riparian habitat occurs within the project area (USIBWC 2008).

732 **3.2.1.6 Wetlands**

733 A freshwater emergent wetland is classified at the northwest end of the project area where the river
734 crosses under Dairy Mart Road and into the Tijuana River Valley Regional Park. No work is planned in
735 the area and no impacts to the wetland would occur. While the Tijuana River runs through the Tijuana

736 River FCP, no jurisdictional waters or wetlands are present due to the lack of a baseline flow (USIBWC
737 2008). Consultation with USACE for sediment dredging may be required.

738 **3.2.2 Environmental Consequences**

739 **3.2.2.1 Proposed Action**

740 Potential impacts to biological resources are considered significant if the Proposed Action would:

- 741 ■ Affect a threatened or endangered species;
- 742 ■ Substantially diminish habitat for a plant or animal species;
- 743 ■ Substantially diminish a regionally or locally important plant or animal species;
- 744 ■ Interfere substantially with wildlife movement or reproductive behavior;
- 745 ■ Result in a substantial infusion of exotic plant or animal species; or
- 746 ■ Destroy, lose, or degrade jurisdictional wetlands (as defined by Section 404 of the CWA).

747 ***Vegetation***

748 Levee enlargement, bank protection, and rodent burrow repair under the Proposed Action would have
749 minimal short-term impacts on vegetation within the Tijuana River FCP area. The banks are sparsely
750 vegetated and the Border Patrol frequently mows the area to maintain visibility. No vegetation occurs on
751 the top of the North Levee where it would be enlarged. Construction equipment has the potential to
752 trample other vegetation within the project area, however, this vegetation is non-native grassland, ruderal
753 communities, and in some cases agricultural crops. Sediment removal would occur within the concrete-
754 lined portion of the low flow river channel upstream of the energy dissipater. No native riparian
755 vegetation occurs within the concrete-lined channel where sediment would be removed, only grasses that
756 have sprouted due to the presence of the sediment. Clearing of the channel of excess sediment and debris
757 would improve conditions for water flow and aquatic habitat. Any riparian vegetation along the river
758 channel would be maintained to support continued development of the habitat.

759 ***Wildlife***

760 Construction activities under the Proposed Action have the potential to temporarily displace wildlife from
761 noise and increased human disturbance. The displacement would be temporary and species would likely
762 return to using the area once construction is complete. No impacts to vegetation under the Proposed
763 Action would occur that would further degrade or limit available habitat. Best management practices
764 (BMPs) to reduce dust and erosion into the floodplain would further prevent impacts to wildlife species in
765 the area.

766 Ground squirrel burrow mitigation and ground squirrel control would potentially decrease the population
767 of ground squirrels and could negatively impact foraging opportunities for raptors. However, given the
768 open habitat of the area, other foraging opportunities would not be impacted and would remain available.
769 The use of rodenticides to remove ground squirrel populations has the potential to impact other non-target
770 species if not properly applied. Ground squirrels could potentially die above ground exposing scavengers
771 (e.g. coyotes and vultures) to low levels of the rodenticides. If used, rodenticides would be applied by a
772 licensed applicator and the appropriate rodenticide would be chosen based on the prevailing conditions.

773 The use of spot baiting at burrows or bait boxes would reduce the exposure to non-target species.
774 Although studies have shown that semi- and fossorial rodents tend to expire underground, there is a
775 chance that some ground squirrels may be located above ground after application. The treated area would
776 be searched daily after application to reduce the exposure of scavengers to carcasses.



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778

Ground squirrel burrows along the north levee.

779 ***Threatened and Endangered Species***

780 Although habitat for listed species does not occur within the project area, critical habitat for the Least
781 Bell's vireo is designated at the northwest portion of the Tijuana River FCP (Figure 7). Potential impacts
782 would be short term and executed in limited footprints throughout the Tijuana River FCP depending on
783 the activity. Increased noise and vibrations from construction and sediment removal activities may disturb
784 the daily activities of the Least Bell's vireo and other migratory birds.

785 The enlargement of the North Levee occurs in close proximity to the Least Bell's vireo designated critical
786 habitat as well as habitat for other migratory birds. The habitat immediately surrounding the levee,
787 however, is composed of agricultural production within the floodplain and development. BMPs employed
788 during levee enlargement, including dust suppression and erosion control, as well as timing, would
789 prevent adverse effects to the Least Bell's vireo and other migratory birds. Construction activities would
790 occur outside the nesting season (April through July).

791 [NOTE: Incorporate comments received from USFWS consultation. When comments are received the
792 letters and any additional information will be contained in Appendix A.]

793 ***Aquatic Ecosystems***

794 Although the Tijuana River is ephemeral and often dry except in high flows through the Tijuana River
795 FCP area, aquatic ecosystems in the Tijuana Estuary occur downstream of the Proposed Action area.
796 Removing accumulated sediment and protecting the embankment would increase river flow and prevent
797 future deposits of sediment downstream in the estuary. Sediment removal and the use of BMPs are

798 expected to improve aquatic habitats downstream of the Tijuana River FCP to some extent. No other
799 impacts to this ecosystem are expected under the Proposed Action.

800 *Unique or Sensitive Areas*

801 Under the Proposed Action, impacts to non-native grasslands would not occur as construction activities
802 would take place away from these habitats. As mentioned above in the aquatic ecosystems section, the
803 removal of extra sediment in the low flow channel may improve habitat and beneficially impact the
804 Tijuana Estuary. The ability of sediment and trash to move downstream during high flows into the estuary
805 would be reduced with the sediment removal.

806 *Wetlands*

807 The Tijuana River FCP does not contain jurisdictional wetlands, and therefore under the Proposed Action,
808 there would be no changes or impacts to wetlands. The wetlands within the Tijuana River Valley
809 Regional Park have undergone extensive sedimentation in recent years, due primarily to sediment
810 transport through the adjacent canyons during storm events (USIBWC 2008). These wetlands, including
811 the wetland on the downstream end of the Tijuana River FCP area, would benefit from removal of extra
812 sediment and debris in the low flow channel to prevent future transportation of the sediment/debris from
813 the Tijuana River FCP during extreme flood events.

814 **3.2.2.2 No Action Alternative**

815 *Vegetation*

816 The vegetation under the No Action Alternative would remain as primarily heavily disturbed habitat
817 containing non-native grasslands and ruderal communities. No impacts to vegetation are expected under
818 the No Action Alternative.

819 *Wildlife*

820 The project area contains non-native grasslands, agriculture, and ruderal communities, and provides
821 limited habitat for most wildlife species. Those species adapted to a disturbance regime, and possibly
822 foraging raptors, may use the Tijuana River FCP. No changes in habitat management would occur under
823 the No Action Alternative; therefore no changes, either further degraded or improved, in habitat are
824 expected and no impacts to wildlife species currently using the area would occur.

825 *Threatened and Endangered Species*

826 Under the No Action Alternative, no changes to the current vegetation management and maintenance of
827 the Tijuana River FCP would occur. Habitat for listed species is not present within the Tijuana River FCP
828 and therefore, no impacts from the No Action Alternative are expected to occur.

829 *Aquatic Ecosystems*

830 Except for very high flows, the Tijuana River is generally dry. Under the No Action Alternative, the flow
831 regime would not be modified, and therefore the aquatic ecosystems would not be altered.

832 ***Unique or Sensitive Areas***

833 Most unique and sensitive areas occur west of the Tijuana River FCP and not within the Tijuana River
834 FCP nor within the Proposed Action areas. The degraded non-native grasslands in the project area may
835 provide some foraging habitat for raptors, but no changes would be made to the vegetation communities
836 in the project area under the No Action Alternative; therefore, no impacts are expected.

837 ***Wetlands***

838 There are no jurisdictional wetlands in the project area, and therefore, under the No Action Alternative,
839 there would be no impacts to these resources.

840 **3.3 Land Use**

841 **3.3.1 Affected Environment**

842 The Tijuana River drains an area of approximately 1,731 square miles within Mexico and the United
843 States. The river flows through the City of Tijuana, crosses the international boundary into California and
844 continues westward about 5.3 miles to empty into the Pacific Ocean about 1.5 miles north of the
845 international boundary. Most of the Tijuana river valley in the United States is within the City of San
846 Diego; a smaller section, a 0.4- to 0.8-mile-wide coastal strip almost 3 miles long adjacent to the Pacific
847 Ocean, is within the City of Imperial Beach. This section characterizes existing land uses in the vicinity of
848 and within the Tijuana River FCP. Existing land uses and land ownership in the vicinity of the Tijuana
849 River FCP are shown on Figure 8.

850 **3.3.1.1 Residential and Commercial**

851 The municipality of Tijuana, Baja Mexico is located south of the Tijuana River FCP, and has fully
852 developed neighborhoods directly adjacent to the South Levee area. To the north and east of the levees is
853 the community of San Ysidro, in San Diego County, California. Immediately adjacent to the North Levee
854 is a single-family residential neighborhood and an indoor shopping mall (Figure 8).

855 **3.3.1.2 Agricultural**

856 While the majority of the region has become urbanized, some areas to the west and east of the project site
857 are still used for agriculture. The north section of the floodway, comprising approximately 40 percent of
858 the total area, is leased for agricultural use, as a sod farm (Figure 8). The sod farm area is identified as
859 prime farmland if irrigated and drained (NRCS 2016).

860

861

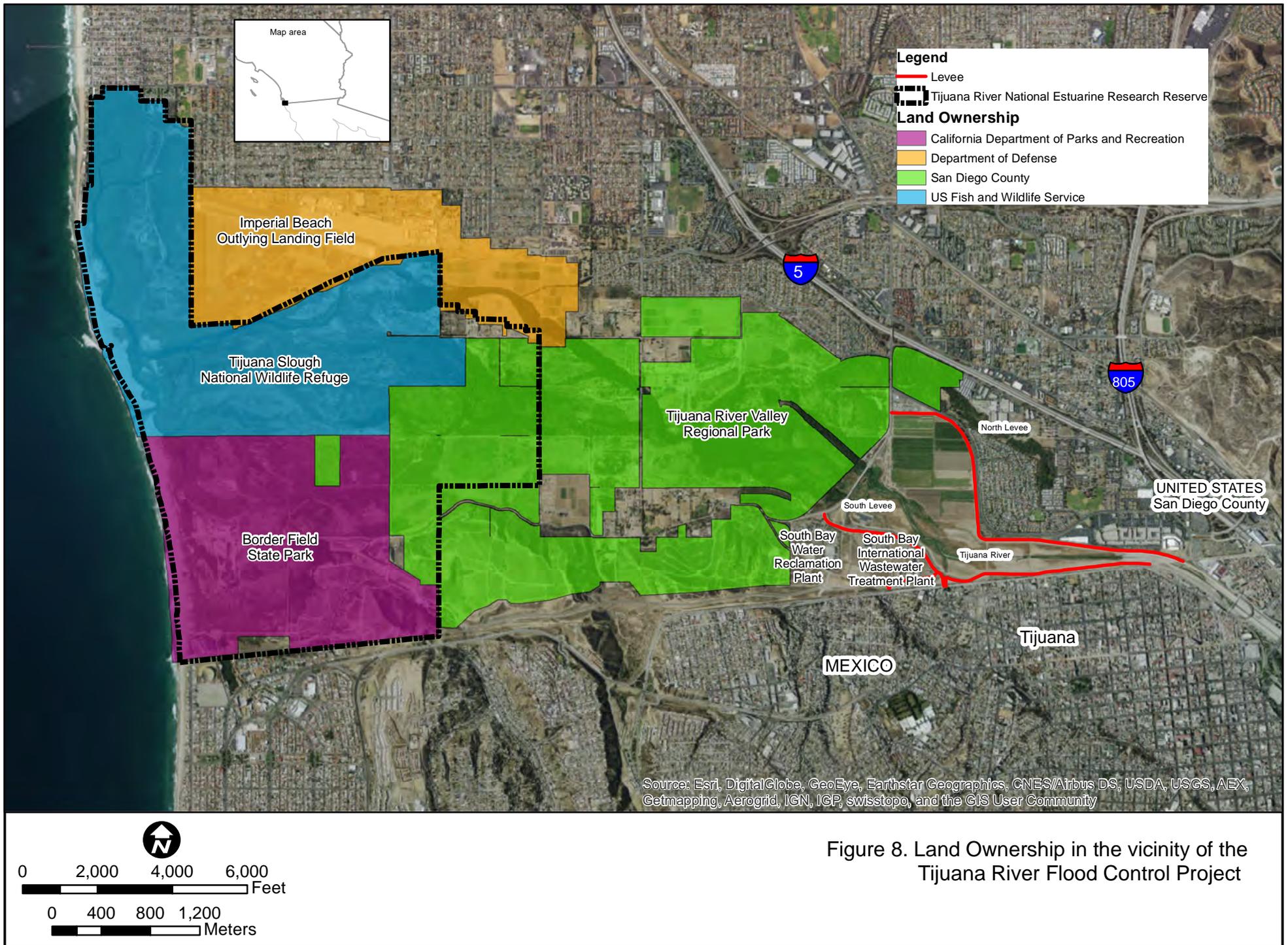


Figure 8. Land Ownership in the vicinity of the Tijuana River Flood Control Project



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Sod farming in the floodplain of the Tijuana River.

867 **3.3.1.3 Recreational and Natural Resource Areas**

868 Major recreational and natural areas near the Tijuana River FCP include the Tijuana River Valley
869 Regional Park and the TRNERR (Figure 8). San Diego County manages the Tijuana River Valley
870 Regional Park that consists of approximately 1,800 acres. The park is generally bounded on the east by
871 Dairy Mart Road, the TRNERR on the west, the United States/Mexico international border on the south,
872 and Sunset Avenue and the residential community to the north. The park includes a mixture of
873 recreational uses, agriculture, and native habitats.

874 The TRNERR is part of a nationwide network known as the National Estuarine Research Reserve System
875 (NERRS), created by the Coastal Zone Management Act of 1972. NERRS encompasses estuarine and
876 coastal habitats protected and managed through a federal-state cooperative effort. The TRNERR
877 encompasses approximately 2,293 acres and is managed by the California State Park system and the
878 National Oceanic and Atmospheric Administration. It includes the Tijuana Slough National Wildlife
879 Refuge managed by the USFWS. A California state park, the Border Field State Park, is also located
880 within the TRNERR and is approximately 750 acres. The park provides restrooms, picnic areas,
881 barbecues, horse corrals, and interpretive displays.

882 Several neighborhood and community parks are located in the general vicinity of the project area. Coral
883 Gate Park is located in the residential subdivision adjacent to the North Levee, and the San Ysidro
884 Athletic Area is approximately 0.25 mile north of the east end of the project area. There are no
885 recreational areas located within the Tijuana River FCP itself.

886 **3.3.1.4 Other Significant Land Uses in the Project Vicinity**

887 United States military land uses are also located in the area. The U.S. Navy's Imperial Beach Outlying
888 Landing Field is located on 1,200 acres within the city limits of Imperial Beach (Figure 8). The field
889 operates as a branch of the Naval Air Station North Island and its mission is to handle the overflow of
890 helicopter squadrons traffic from North Island. Presently, Imperial Beach Outlying Landing Field leases

891 270 acres for agricultural purposes and 284 acres to the State of California for a wildlife refuge at the
892 southeast corner (CNIC 2016).

893 The international border between the United States and Mexico is adjacent to the South Levee. The U.S.
894 Department of Homeland Security, U.S. Customs and Border Protection manages approximately 250
895 acres along the U.S.-Mexico Border. This area contains a border patrol station (Imperial Beach Station),
896 border fence, including secondary and tertiary fences, border lighting, camera towers, and border fence
897 gates.

898 The SBIWTP, a 25 million gallon per day secondary treatment plant, is located on a 75-acre site south
899 and west of the Tijuana River FCP (Figure 8). It treats sewage originating from Tijuana, Mexico and
900 discharges it to the Pacific Ocean. Both countries share in the operation and maintenance of the SBIWTP
901 (USIBWC 2016). The City of San Diego's South Bay Water Reclamation Plant is located to the west of
902 the SBIWTP (Figure 8). The plant provides local wastewater treatment services and reclaimed water to
903 the South Bay. The plant opened in May 2002 and has a wastewater treatment capacity of 15 million
904 gallons per day (City of San Diego 2016).

905 **3.3.1.5 Land Use Planning Documents**

906 The following local and regional planning documents are central to the management of the Tijuana River
907 Valley.

- 908 ■ Tijuana River Valley: Local Coastal Program Land Use Plan – outlines goals to support the primary
909 land use emphasis of preservation, enhancement, and restoration of the natural features of the area,
910 while still allowing for limited recreational and agricultural use. This plan was written by the City of
911 San Diego in 1999.
- 912 ■ A Binational Vision for the Tijuana River Watershed – outlines future desired conditions of the
913 Tijuana River Watershed and devises strategies and options to achieve the vision. Includes water, air,
914 ecosystems and natural resources, waste, and socioeconomic issues as major areas of concern. This
915 plan was written by the Binational Watershed Advisory Council for the Tijuana River Watershed in
916 2005.
- 917 ■ Border 2020: U.S. - Mexico Environmental – a binational effort that aims, “to protect the
918 environment and public health in the U.S. - Mexico Border region, consistent with the principles of
919 sustainable development.” This plan was written by Environmental Protection Agency and
920 SEMARNAT in 2011.
- 921 ■ Imperial Beach General Plan & Local Coastal Plan – serves as the City's constitution for physical
922 development and regulating land use throughout the City. This plan was written by the City of
923 Imperial Beach in 2010.
- 924 ■ Multiple Species Conservation Program Subarea Plan – delineates core biological resource areas and
925 corridors targeted for conservation, incorporating the 25-year floodplain within the City's jurisdiction
926 and much of the 100-year floodplain in the valley. This plan was written by the City of San Diego in
927 1997.

- 928 ■ Recovery Strategy – identifies a collaborative path forward, “...to cost effectively address sediment
929 and trash issues while respecting natural and cultural resources, the roles and responsibilities of
930 agency managers, and the needs of landowners, residents, recreational users, and visitors.” This plan
931 was written by the Tijuana River Valley Recovery Team in 2012.
- 932 ■ TRNERR Comprehensive Management Plan – guides TRNERR in its mission of estuarine resource
933 protection. This plan was written by the California State Parks, the National Oceanic and
934 Atmospheric Administration, and the USFWS in 2010.
- 935 ■ Tijuana River Valley Regional Park- Area Specific Management Directives – provides a guidance
936 document to preserve and manage the biological and cultural resources within Tijuana River Valley
937 Regional Park while balancing the need to provide appropriate passive recreational opportunities.
938 This plan was written by the County of San Diego in 2007.

939 **3.3.2 Environmental Consequences**

940 **3.3.2.1 Proposed Action**

941 Potential impacts to land use are considered significant if the Proposed Action would:

- 942 ■ Conflict with applicable ordinances and/or permit requirements;
- 943 ■ Preclude adjacent or nearby properties from being used for existing activities; or
- 944 ■ Conflict with established uses of an area requiring mitigation.

945 The Proposed Action would be contained within the Tijuana River FCP. There would be no change to
946 existing land use within or adjacent to the project. The Proposed Action would not conflict with land use
947 plans or preclude adjacent or nearby properties from being used for existing activities. Rehabilitation of
948 the levees would protect surrounding residential communities from potential flooding.

949 **3.3.2.2 No Action Alternative**

950 Under the No Action Alternative, the rehabilitation of the levees would not occur. No change to existing
951 land use within or adjacent to the project would occur. Surrounding residential communities would
952 remain at greater risk of flooding.

953 **3.4 Cultural Resources**

954 **3.4.1 Affected Environment**

955 Archaeological surveys have been conducted in the area of the Tijuana Estuary since the 1920’s
956 (TRNERR 2014) and are summarized in the cultural resources report prepared for the USIBWC for the
957 PEIS by Geo-Marine Inc. in July 2005. Cultural resources within the project area are defined as historic
958 properties that are archaeological sites or historic structures. Historic structures are those structures that
959 were constructed at least 50 years ago. Archaeological sites in the project area date from the Late
960 Prehistoric period to the Historic period (A.D. 500/800 to 1539; Geo-Marine 2005).

961 Within 0.5 mile of the Tijuana River in the project area, 20 cultural properties or historic districts have
962 been previously documented, all located in San Diego County. A variety of archaeological types are
963 present ranging from shell scatters to habitation sites (TRNERR 2014). A total of 16 of the 20 sites are
964 prehistoric, three are historic (including historic archaeological sites and standing structures, while one
965 archaeological site also contains standing structures), and one site contains prehistoric and historic
966 components. The eligibility status of those sites for listing in the National Register of Historic Places
967 (NRHP) or as historic districts is unknown (Geo-Marine 2005).

968 Within the Tijuana River FCP, 95 percent of the previously recorded temporal components are within the
969 floodplain, 85 percent are within the prehistoric floodplain, 15 percent are within the prehistoric
970 terrace/fan, 50 percent are within the historic floodplain, and 50 percent are within the historic terrace/fan
971 (USIBWC 2008).

972 The Tijuana River Valley also contains several recorded paleontological resources associated with the
973 San Diego Formation and unnamed Pleistocene terrace deposits, both of which are fossil-containing
974 formations. These sites are significant because they contain highly preserved fossils, especially fossils
975 from the San Diego Formation, which are preserved as original shell material, with some forms even
976 retaining color. The San Diego Formation also has a high potential for yielding important remains of
977 fossil marine vertebrates, especially marine mammals, which are rare and about which not much is known
978 (TRNERR 2014).

979 Due to the floodplain/estuary environment along the Tijuana River, most of the prehistoric properties
980 have been identified within plowed fields, road cuts, or in other areas in depths of up to 23 feet deep.
981 Based on the considerable frequency of sites found on the surrounding terraces above the river, additional
982 prehistoric sites are most likely buried under Tijuana River alluvium. Furthermore, frequent historic
983 flooding of the river, including extensive floods that occurred in the lower valley in 1895 and 1916,
984 indicates the high potential for buried sites in this region (Geo-Marine 2005).

985 **3.4.2 Environmental Consequences**

986 **3.4.2.1 Proposed Action**

987 Potential impacts to historic properties and/or archaeological resources are considered significant if the
988 Proposed Action would:

- 989 ■ Physically destroy, damage, or alter all or part of the property;
- 990 ■ Physically destroy, damage, alter or remove items from archaeological contexts without a proper
991 mitigation plan;
- 992 ■ Isolate the property from or alter the character of the property's setting when that character
993 contributes to the property's qualification for the NRHP;
- 994 ■ Introduce visual, audible, or atmospheric elements that are out of character with the property or alter
995 its setting;
- 996 ■ Neglect a property resulting in its deterioration or destruction; or
- 997 ■ Transfer, lease, or sell the property without a proper preservation plan.

998 Enlarging and stabilizing the North Levee, repairing rodent burrows, and removing low flow channel
999 sediments and debris have limited potential to impact cultural resources, since these would mostly be
1000 surface disturbances. However, based on the considerable frequency of cultural sites on the surrounding
1001 terraces above the river, additional prehistoric sites are most likely buried under Tijuana River alluvium,
1002 and therefore, modification to the levees or channel sediments that involve deeper excavation may
1003 encounter buried cultural deposits including paleontological resources. Cultural resources discovered
1004 during excavation would be evaluated for NRHP eligibility following their discovery and subject to
1005 impact mitigation.

1006 In the event cultural materials are encountered during construction, the contractor shall immediately halt
1007 work in the area of the find until the material can be evaluated by a qualified cultural resource specialist
1008 for NRHP eligibility. Cultural materials are subject to impact mitigation measures as described in the
1009 Programmatic Agreement executed March 11, 1994, between the USIBWC, USEPA Region IX,
1010 Advisory Council on Historic Preservation, State Historic Preservation Officer, and the City of San
1011 Diego. With incorporation of these mitigation measures, impacts to cultural resources would be
1012 considered mitigated to a less than significant level.

1013 [Discuss SHPO consultation and refer to Appendix A]

1014 **3.4.2.2 No Action Alternative**

1015 Under the No Action Alternative, the levee system would not be rehabilitated by enlarging and stabilizing
1016 the North Levee, removing sediment, and repairing rodent burrows. No effects to historical or
1017 archaeological resources would occur under this alternative.

1018 **3.5 Socioeconomic Resources and Transportation**

1019 **3.5.1 Affected Environment**

1020 This section describes existing regional economics, environmental justice, and transportation resources.

1021 **3.5.1.1 Regional Economics**

1022 Regional economics are discussed in terms of population, employment/income, and housing.

1023 *Population*

1024 The Tijuana River FCP is located within San Diego County. The closest communities to the Tijuana
1025 River FCP that may be affected by the Proposed Action include the community of San Ysidro and the city
1026 of Imperial Beach. Table 5 identifies the populations of these communities in 2012, as well as projected
1027 populations for 2020 and 2050. The population of San Diego County is expected to increase by 29
1028 percent from 2012 to 2050. Imperial Beach expects an increase of 19 percent and San Ysidro expects an
1029 increase of 33 percent.

1030 **Table 5. Population Growth in San Diego County and Relevant Communities Adjacent to**
1031 **the Tijuana River FCP**

Jurisdiction	2012	2020	2050	Percent Change 2012-2050
San Diego County ¹	3,143,429	3,435,713	4,068,759	29
Imperial Beach ²	26,609	27,506	31,691	19
San Ysidro ³ (zip code 92173)	29,688	30,895	39,367	33

1032 1 SANDAG 2016a

1033 2 SANDAG 2016b

1034 3 SANDAG 2016c

1035 ***Employment and Income***

1036 The economy of the San Diego region is based primarily on the service, retail trade, government, and
1037 manufacturing sectors of the economy. Total employment statistics are shown in Table 6. Jobs are
1038 expected to increase similarly in each jurisdiction with increases of 32 to 34 percent from 2012 to 2050.

1039 **Table 6. Estimated Total Employment for San Diego County and Relevant Communities**
1040 **Adjacent to the Tijuana River FCP**

Jurisdiction	2012	2020	2050	Percent Change 2012-2050
San Diego County ¹	1,450,913	1,624,124	1,911,405	32
Imperial Beach ²	3,665	4,555	4,857	33
San Ysidro ³ (zip code 92173)	7,322	8,284	9,800	34

1041 1 SANDAG 2016a

1042 2 SANDAG 2016b

1043 3 SANDAG 2016c

1044 Median household income for San Diego County in 2010 was \$63,586 (SANDAG 2016d). Median
1045 household income for Imperial Beach and San Ysidro in 2010 was \$45,785 and \$36,072, respectively
1046 (SANDAG 2016e and f).

1047 ***Housing***

1048 The total number of housing units in San Diego County in 2012 was 1,165,818 (Table 7). Of those units,
1049 single family homes accounted for 60 percent and multiple family homes accounted for 36 percent
1050 (SANDAG 2016a). Multiple family housing units are expected to increase at a greater rate than single
1051 family housing units, a 65 percent increase from 2012 to 2050, as compared to a 9 percent increase for
1052 single family housing units over that same time period (SANDAG 2016a). The total number of housing
1053 units is expected to increase at a slightly higher rate in San Ysidro (32 percent) than in the county (28
1054 percent) from 2012 to 2050. It is expected that Imperial Beach will see a lower rate of increase at 17
1055 percent.

1056 **Table 7. Total Housing Units in San Diego County and Relevant Communities Adjacent to**
1057 **the Tijuana River FCP**

Jurisdiction	2012	2020	2050	Percent Change 2012-2050
San Diego County ¹	1,165,818	1,249,684	1,491,935	28
Imperial Beach ²	9,863	10,001	11,528	17
San Ysidro ³ (zip code 92173)	7,782	7,993	10,284	32

1058 1 SANDAG 2016a

1059 2 SANDAG 2016b

1060 3 SANDAG 2016c

1061 **3.5.1.2 Environmental Justice**

1062 EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income*
1063 *Populations*, encourages federal facilities to achieve “environmental justice” by identifying and
1064 addressing, as appropriate, disproportionately high and adverse human health or environmental effects of
1065 its programs, policies, and activities on minority and low-income populations. Accompanying EO 12898
1066 was a Presidential transmittal memorandum that referenced existing federal statutes and regulations to be
1067 used in conjunction with EO 12898. One of the items in this memorandum was the use of the policies and
1068 procedures of NEPA, specifically that, “Each Federal agency shall analyze the environmental effects,
1069 including human health, economic, and social effects, of Federal actions, including effects on minority
1070 communities and low-income communities, when such analysis is required by the NEPA 42 USC,
1071 Section 4321, et seq.”

1072 To determine whether the project area contains a disproportionately high minority or low-income
1073 population, data for Imperial Beach and San Ysidro were compared to data for San Diego County and the
1074 state of California.

1075 *Minority Populations.* The percentage of the population represented by minorities and the poverty rate in
1076 the project area, as compared to San Diego County, the state of California, and the entire United States
1077 are shown in Table 8. Imperial Beach and San Ysidro have a disproportionately high minority
1078 population. The average minority population of these two communities is 79.4 percent. The minority
1079 population in the region of comparison is 48.9 percent. Minority populations of Hispanic or Latino
1080 nationality dominate with an average of 71.1 percent. The population of Hispanic or Latino persons in
1081 San Ysidro is exceptionally high at 93.2 percent.

1082 **Table 8. Percentage of Minority Populations and Poverty Rates in the Project Area (2010)**

Race and Ethnicity	California	San Diego County	Imperial Beach	San Ysidro (92173)	United States
White	57.6	64.0	62.6	58.3	72.4
Hispanic or Latino (of any race)	37.6	32.0	49.0	93.2	16.3
Black	6.2	5.1	4.4	1.5	12.6

Race and Ethnicity	California	San Diego County	Imperial Beach	San Ysidro (92173)	United States
Asian	13.0	10.9	6.6	2.3	4.8
American Indian	1.0	0.9	1.0	0.8	0.9
Total Minority	57.8	48.9	61	97.8	34.6
Poverty ¹	16.4	14.7	19.7	29.3	15.6

1083 SOURCE: U.S. Census 2010

1084 1 Poverty rates are from 2010-2014 American Community Survey 5-Year Estimates.

1085 *Poverty Rates.* Poverty rates indicate low-income populations are relatively high in the project area (Table
1086 8). The poverty rates in Imperial Beach and San Ysidro are 19.7 and 29.3, respectively, as compared to
1087 14.7 in San Diego County and 16.4 in the state.

1088 3.5.1.3 Transportation

1089 The primary public roads in the project area are Dairy Mart Road and Camino de la Plaza. Maintenance
1090 roads alongside the North and South levees are used by the USIBWC and the U.S. Border Patrol. In
1091 addition, USIBWC and the U.S. Border Patrol use a paved road on top of the North Levee. Average
1092 weekday traffic counts (two-way, 24-hour volumes) recorded in 2013 are shown in Table 9.

1093 **Table 9. Average Weekday Traffic Volumes for Primary Roads in Project Area**

Primary Street	First Cross Street	Second Cross Street	Average Weekday Traffic Volume (Year)
Dairy Mart Road	Interstate 5	Servando Avenue	13,800 (2012)
	Servando Avenue	Monument Road	10,200 (2010)
Camino de la Plaza	Willow Road	Interstate 5 Southbound Ramp/Camiones Way	18,200 (2010)

1094 SOURCE: SANDAG 2016g

1095



1096 Access roads used by the U.S. Border Patrol in the floodplain.
1097

1098 **3.5.2 Environmental Consequences**

1099 **3.5.2.1 Proposed Action**

1100 **3.5.2.1.1 Regional Economics**

1101 Potential socioeconomic impacts are considered significant if the Proposed Action would cause:

- 1102 ■ Substantial gains or losses in population, employment, and/or income; or
- 1103 ■ Disequilibrium in the housing market, such as severe housing shortages or surpluses, resulting in
- 1104 substantial property value changes.

1105 The Proposed Action would not cause significant impacts to population, income and employment, or

1106 housing in the project area. Negligible short-term increases in income and employment could occur in the

1107 project area during construction activities.

1108 **3.5.2.1.2 Environmental Justice**

1109 Potential environmental justice impacts are considered significant if the Proposed Action would cause

1110 disproportionate adverse effects on low-income and/or minority populations. Disproportionately high and

1111 adverse human health and environmental effects on minority and low-income populations are not

1112 expected, as the Proposed Action would not cause significant adverse impacts to water resources,

1113 biological resources, land use, cultural resources, socioeconomics and transportation, or environmental

1114 health. Rehabilitating the levees to ensure they perform during a 100-year flood and protect surrounding

1115 communities would be a beneficial impact on the community of San Ysidro, which has high minority and

1116 low-income populations.

1117 **3.5.2.1.3 Transportation**

1118 Potential impacts to transportation are evaluated with respect to the potential for the Proposed Action to:

- 1119 ■ Disrupt or improve current transportation patterns and systems; and
- 1120 ■ Change existing levels of safety.

1121 The Proposed Action could cause a short-term increase in traffic during construction activities.

1122 Construction vehicles would access the project area using Dairy Mart Road and Camino de la Plaza.

1123 However, no long-term changes to existing traffic patterns or volumes would occur on Dairy Mart Road

1124 or Camino de la Plaza. No changes to maintenance roads alongside the North and South levees used by

1125 USIBWC and the U.S. Border Patrol would occur. **[verify this statement with the hydrological report**

1126 **when details about enlarging the footprint of the levee are known]** The paved road atop the North Levee

1127 would be removed and replaced in the area of the North Levee enlargement (Figure 3). The replacement

1128 road would remain the same width as the existing road. The Proposed Action would not result in

1129 significant impacts to transportation.

1130 **3.5.2.2 No Action Alternative**

1131 Under the No Action Alternative, the levee rehabilitation would not occur. No impacts or changes to
1132 existing regional economics, environmental justice, or transportation conditions would occur. The
1133 community of San Ysidro would remain at a greater risk of flooding.

1134 **3.6 Environmental Health**

1135 **3.6.1 Affected Environment**

1136 **3.6.1.1 Air Quality**

1137 The Clean Air Act, Title 42, Section 7407 of the U.S. Code, states that Air Quality Control Regions
1138 (AQCR) shall be designated in interstate and major intrastate areas as deemed necessary or appropriate by
1139 a federal administrator for attainment and maintenance of concentration-based standards called National
1140 Ambient Air Quality Standards (NAAQS). NAAQS have been established for six criteria pollutants:
1141 carbon monoxide (CO); lead (Pb); nitrogen dioxide (NO₂); ozone (O₃); particulate matter (which includes
1142 both particulate matter with an aerodynamic size less than or equal to 10 microns [PM₁₀] and particulate
1143 matter with an aerodynamic size less than or equal to 2.5 microns [PM_{2.5}]); and sulfur dioxide (SO₂). The
1144 United States Environmental Protection Agency (USEPA) classifies the air quality within an AQCR
1145 according to whether the concentration of criteria air pollutants in the atmosphere exceeds primary or
1146 secondary NAAQS. National primary ambient air quality standards define levels of air quality which the
1147 USEPA has determined as necessary to provide an adequate margin of safety to protect public health,
1148 including the health of “sensitive” populations such as children and the elderly. National secondary
1149 ambient air quality standards define levels of air quality which are deemed necessary to protect the public
1150 welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and
1151 buildings. All areas within each AQCR are assigned a designation of attainment, nonattainment,
1152 unclassifiable attainment, or not designated attainment for each criteria air pollutant. An attainment
1153 designation indicates that the air quality within an area is as good as or better than the NAAQS.

1154 Nonattainment indicates that air quality within a specific geographical area exceeds applicable NAAQS.
1155 Unclassifiable and not designated indicates that the air quality cannot be or has not been classified on the
1156 basis of available information as meeting or not meeting the NAAQS and is therefore treated as
1157 attainment. Before a nonattainment area is eligible for reclassification to attainment status, the state must
1158 demonstrate compliance with NAAQS in the nonattainment area for three consecutive years and
1159 demonstrate, through extensive dispersion modeling, that attainment status can be maintained in the
1160 future even with community growth.

1161 Generally, areas in violation of one or more of the NAAQS are designated nonattainment and must
1162 comply with stringent restrictions until all the standards are met. In the case of ozone, carbon monoxide,
1163 and PM₁₀, USEPA divides nonattainment areas into different categories, depending on the severity of the
1164 problem in each area. Each nonattainment category has a separate deadline for attainment and a different
1165 set of control requirements under the applicable State Implementation Plan.

1166 The Tijuana River FCP is located in San Diego County within the San Diego Intrastate AQCR for the San
1167 Diego Air Basin (SDAB). The local agency responsible for air quality within this AQCR is the San Diego

1168 Air Pollution Control District. The California Air Resources Board is the state-level agency responsible
1169 for administration of state and federal air quality regulations.

1170 Air quality standards in the United States are published in 40 CFR Part 81 Subpart C. San Diego County
1171 is classified as moderate nonattainment for the 2008 ozone 8-hour standard. The air quality in San Diego
1172 County is considered better than national standards for sulfur dioxide. Carbon monoxide is in attainment
1173 within the west portion of the San Diego area, and is considered unclassifiable or in attainment for the
1174 remainder of the SDAB. PM₁₀ in San Diego County is considered unclassifiable and PM_{2.5} is considered
1175 unclassifiable or in attainment. Nitrogen dioxide in the SDAB cannot be classified or is better than the
1176 national standard. Total suspended particulates in the east portion of San Diego County cannot be
1177 classified, and does not meet primary standards in the west portion.

1178 The estimated emissions in 2012 for the San Diego Air Pollution Control District are as follows
1179 (California Air Resources Control Board 2013):

- 1180 ■ Carbon monoxide, 527.4 tons per day (192,500 tons per year)
- 1181 ■ Total Organic Gas, 498.3 tons per day (181,880 tons per year)
- 1182 ■ Nitrogen oxides, 113.9 tons per day (41,574 tons per year)
- 1183 ■ Sulfur oxides, 1.9 tons per day (694tons per year)
- 1184 ■ PM_{2.5}, 20.3 tons per day (7,410 tons per year)
- 1185 ■ PM₁₀, 72.7 tons per day (26,535 tons per year)

1186 Existing maintenance activities by USIBWC personnel consists of routine inspections of levees and
1187 access roads. Periodic maintenance activities at the levees, channels and floodway result in the use of
1188 heavy equipment including scrapers, mowers, bulldozers and dump trucks. Use of these heavy equipment
1189 and associated vehicles is typically limited to once every three months or less and does not represent a
1190 significant source of air pollutants.

1191 **3.6.1.2 Noise**

1192 **3.6.1.2.1 Noise Measurement**

1193 Noise is generally defined as unwanted sound. Sound is all around us; it becomes noise when it interferes
1194 with normal activities such as speech, concentration, or sleep. Ambient noise (the existing background
1195 noise environment) can be generated by a number of noise sources, including mobile sources, such as
1196 automobiles and trucks, and stationary sources such as construction sites, machinery, or industrial
1197 operations. In addition, there is an existing and variable level of natural ambient noise from sources such
1198 as wind, streams and rivers, wildlife, and other sources.

1199 Sound is measured with instruments that record instantaneous sound levels in decibels (dB). A-weighted
1200 sound level measurements (dBA) are used to characterize sound levels that can be sensed by the human
1201 ear. The typical measurement for quieter sounds, such as rustling leaves or a quiet room, is from 20 to 30
1202 dBA. Conversational speech is commonly 60 dBA, and a home lawn mower measures approximately 98
1203 dBA. All sound levels discussed in this EA are A-weighted.

1204 3.6.1.2.2 Existing Noise Sources in the Project Area

1205 Sources of noise in the project area include motor vehicle traffic and intermittent aircraft activity
1206 originating from Outlying Field Imperial Beach, Brown Field Municipal Airport, and the Tijuana
1207 International Airport. Noise levels are typical for moderately sized suburban residential developments
1208 and industrial areas. Interstate Highway 5 is located approximately 0.2 mile north of the project area and
1209 is a major north-south transportation route in San Diego and a major access route to Mexico. U.S. Border
1210 Patrol uses off-road vehicles and four-wheel all-terrain vehicles for patrolling in locations where road
1211 access is not available. Noise levels of all-terrain vehicles generally exceed 80 dBA at 25 feet depending
1212 on the activity and type of vehicle, and represent a major noise source in the project area (USIBWC
1213 2008).

1214 Hourly sound levels measured in August and September 2004 along Monument Road ranged from
1215 approximately 40 dBA to 61 dBA. Higher noise levels at this location and throughout the project area are
1216 the result of intermittent aircraft overflight. More recent sound measurements in the project area are not
1217 available. Existing maintenance activities by USIBWC personnel consist of routine inspections of levees
1218 and access roads. Periodic maintenance activities at the levees, channels, and floodway result in the use of
1219 heavy equipment including scrapers, mowers, front-end loaders and dump trucks. Use of these heavy
1220 equipment and associated vehicles is typically limited to once every 3 months or less and does not
1221 represent a significant source of noise (USIBWC 2008).

1222 3.6.1.3 Public Health and Environmental Hazards

1223 ***Public Health***

1224 The Tijuana River is contaminated by continuing spills from the Tijuana sewer system and by drainage of
1225 sewage from large populated areas within the Tijuana Municipality not served by any sewer system.
1226 Historically, river water has been indistinguishable from raw sewage in the project area, although the
1227 situation has improved since the SBIWTP was constructed. Continuing sewage flows during wet weather
1228 pose environmental and health concerns, including vector-borne disease, from potential exposure to
1229 hazardous wastes (USIBWC 2008).

1230 If the public comes in contact with contaminated water in the Tijuana River related to untreated sewage
1231 discharges into the Tijuana River from Mexico, a public health issue would result. Sewage discharges
1232 could include pathogens such as bacteria, viruses, and parasites; heavy metals; and organic compounds. In
1233 addition, it is likely that floodwaters containing sewage pollutants have impacted soil within the
1234 floodplain of the river (USIBWC 2008).

1235 ***Environmental Hazards***

1236 Hazardous materials are chemical substances defined by the Comprehensive Environmental Response,
1237 Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and
1238 Reauthorization Act and the Toxic Substances and Control Act (TSCA) that pose a substantial hazard to
1239 human health or the environment. Hazardous materials include hazardous substances, hazardous
1240 chemicals, and toxic chemicals. In general, these materials pose hazards because of their quantity,
1241 concentration, physical, chemical, or infectious characteristics.

1242 Hazardous wastes are defined under the Solid Waste Disposal Act, as amended by the Resource
1243 Conservation and Recovery Act (RCRA), as a solid waste, or combination of solid waste, which because
1244 of its quantity, concentration, or physical, chemical, or infectious characteristics may: 1) cause, or
1245 significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating
1246 reversible, illness; or 2) pose a substantial present or potential hazard to human health or the environment
1247 when improperly treated, stored, transported, disposed of, or otherwise managed. Waste may be classified
1248 as hazardous due to its toxicity, reactivity, ignitability, or corrosivity.

1249 Waste disposal activities at or near the Tijuana River FCP were identified to determine areas where
1250 industrial processes occurred, solid and hazardous wastes were stored, disposed, or released; and
1251 hazardous materials or petroleum or its derivatives were stored or used. A data search of waste storage
1252 and disposal sites was conducted on November 11, 2016 using NEPAAssist, an internet service provided by
1253 USEPA (USEPA 2016). NEPAAssist uses interactive GIS maps to display facility-based environmental
1254 information as reported to the USEPA. The following facility types were queried for the Tijuana River
1255 FCP area:

- 1256 ■ Superfund Sites: specific facilities designated as Superfund sites by the USEPA, which is a federal
1257 program designed to fund the cleanup of sites contaminated with hazardous substances and pollutants.
- 1258 ■ Toxic Release Sites: specific facilities regulated by the USEPA that release toxic substances into the
1259 environment, listed in the Toxics Release Inventory database.
- 1260 ■ Water Dischargers: USEPA-regulated municipal and industrial wastewater treatment facilities
1261 discharging water into rivers, streams, lakes, and other waterways.
- 1262 ■ Hazardous Waste Sites: USEPA-regulated RCRA sites and/or facilities that handle materials
1263 designated as hazardous waste.
- 1264 ■ Brownfields Sites: Former industrial or commercial facilities that may still be contaminated by
1265 hazardous wastes but are being redeveloped with appropriate uses.

1266 The NEPAAssist search included the Tijuana River FCP area and an approximate 3,000-foot radius around
1267 the periphery of the project area. No Superfund sites, toxic release sites, brownfields, nor National
1268 Pollutant Discharge Elimination System (NPDES) water dischargers were identified for the Tijuana River
1269 FCP area. Within 3,000 feet of the periphery of the project area, one NPDES water discharger (SBIWTP)
1270 and 10 hazardous waste sites were identified.

1271 The USIBWC has spill prevention, control, and countermeasures (SPCC) and storm water pollution
1272 prevention plans for its operations at the nearby SBIWTP. These plans require routine inspections (using
1273 checklists included in the plan) of a range of areas, tanks, and containers at the facility (USIBWC 2008).
1274 The USIBWC does not have separate SPCC or other management plans for flood control operations.

1275 3.6.2 Environmental Consequences

1276 3.6.2.1 Proposed Action

1277 3.6.2.1.1 Air Quality

1278 Potential impacts to air quality are considered significant if the Proposed Action would:

- 1279 ■ Increase ambient air pollution above any NAAQS;
- 1280 ■ Contribute to an existing violation of any NAAQS; or
- 1281 ■ Interfere with or delay timely attainment of NAAQS.

1282 Potential impacts to air quality from the Proposed Action would be short term in nature and would not be
1283 significant. The short-term impacts would occur from construction activities associated with the
1284 movement of heavy equipment during the North Levee enlargement, North Levee embankment
1285 protection, rodent burrow repair and mitigation, and removal of sediment/debris from the concrete-lined
1286 portion of the low flow channel. Construction activities would be temporary and would occur in localized
1287 areas. Contaminants generated from construction would include increased wind-borne dust (i.e. fugitive
1288 dust), particulate matter, and vehicle emissions.

1289 Construction equipment, such as a bulldozer, loader, compactor, and haul truck would emit carbon
1290 monoxide, nitrogen oxides, volatile organic compounds, sulfur, and particulate matter during the short-
1291 term period of construction. The following are the assumptions for construction emissions (URS 2012a)
1292 (Note: these assumptions will need to be verified by IBWC and calculations changed if numbers change.
1293 Numbers are based on information found in the geotechnical reports):

- 1294 ■ North Levee enlargement would require a dozer (105 HP), loader, compactor, and haul truck for 15
1295 days. The project would excavate, haul, place and compact approximately 9,400 cubic yards of
1296 material.
- 1297 ■ North Levee embankment protection would require a dozer, loader, compactor, and haul truck for 10
1298 days. The project would move approximately 920 tons of riprap and approximately 1,400 cubic yards
1299 of earth cut and fill material.
- 1300 ■ Rodent burrow repair and mitigation would require a dozer and compactor for 1 day.
- 1301 ■ Removal of sediment/debris would require a dozer, loader, compactor, and haul truck for 10 days.

1302 Assuming that a 105 HP dozer would be required for 36 days at 8 hours per day, the total nitrogen oxides
1303 emissions would be approximately 0.10 ton. This assumes a Tier 3 engine that emits the emission
1304 standard of 3.0 grams/bhp-hr (DieselNet 2016)

1305 BMPs would be implemented to minimize generation of fugitive dust and diesel particulate matter and
1306 exhaust emissions. Within the construction site, appropriate BMPs would be identified that would
1307 provide optimum dust suppression. BMPs typically utilize (but are not limited to) either wind speed
1308 reduction or water suppression strategies (or both) during construction by fencing or wetting areas of soil
1309 disturbance. Typical BMPs to minimize diesel exhaust emissions can include utilizing USEPA-registered
1310 particulate traps and other appropriate controls to reduce emissions of diesel particulate matter, locating

1311 construction equipment and staging zones away from sensitive receptors such as children and the elderly,
1312 using low sulfur fuel, reducing unnecessary idling from heavy equipment, using newer and cleaner
1313 equipment, and periodically inspecting the work sites to ensure that construction equipment is properly
1314 maintained at all times.

1315 Section 176(c)(1) of the *Clean Air Act* requires federal agencies to ensure that their actions conform to
1316 applicable implementation plans for the achievement and maintenance of the NAAQS for criteria
1317 pollutants. To achieve conformity, a federal action must not contribute to new violations of standards for
1318 ambient air quality, increase the frequency or severity of existing violations, or delay timely attainment of
1319 standards in the area of concern (for example, a state or a smaller air quality region). Federal agencies
1320 prepare written Conformity Determinations for federal actions that are in or that affect NAAQS
1321 nonattainment or maintenance areas when the total direct or indirect emissions of nonattainment
1322 pollutants (or their precursors in the case of ozone) exceed specified thresholds. Conformity with the
1323 USEPA-approved state implementation plan is demonstrated if the project emissions fall below the
1324 threshold value *de minimis* emissions. The Proposed Action in the SDAB is located in an area that has
1325 been designated as a moderate nonattainment area for ozone (8-hour standard). The *Clean Air Act*
1326 conformity threshold values for this area are 100 tons per year for the ozone precursors nitrogen oxides
1327 and volatile organic compounds. Due to the short duration of construction, the Proposed Action would not
1328 produce emissions that are greater than the threshold *de minimis* values for criteria pollutants as described
1329 above. Therefore, the Proposed Action falls into conformity with the USEPA-approved state
1330 implementation plans and a written Conformity Determination is not required.

1331 Long-term impacts associated with the Proposed Action are not likely to occur. No additional long-term
1332 sources of air pollutants would be created by the Proposed Action and the existing maintenance activities
1333 would not be significantly changed after the construction is completed.

1334 3.6.2.1.2 Noise

1335 Noise impacts are evaluated with respect to the potential for:

- 1336 ■ Annoyance. Noise can impact the performance of various everyday activities such as communicating
1337 and watching television in residential areas. Sound levels that cause annoyance vary greatly by
1338 individual and background conditions.
- 1339 ■ Hearing hazard. The Occupational Safety and Health Administration has identified the maximum
1340 permissible continuous noise level that workers may be exposed to without controls is 90 A-weighted
1341 decibels (dBA) for a duration of 8 hours per day [29 CFR 1910.95(b)(2)]. Whenever employee noise
1342 exposures equal or exceed an 8-hour time-weighted average sound level of 85 dBA, a hearing
1343 conservation program must be administered [29 CFR 1910.95(c)(1)]. These values are for a duration
1344 of 8 hours. Employees can be exposed to greater sound levels for shorter durations.

1345 Sensitive noise receptors near the project area include residences, educational facilities, places of worship,
1346 and the Tijuana River Valley Regional Park which includes habitat for federally listed bird species.
1347 Section 3.2.2.1 discusses noise impacts on wildlife. A residential community is located along Camino de
1348 la Plaza north and east of the North Levee. The nearest residence to the area where the North Levee
1349 would be enlarged is approximately 160 feet and to where the North Levee embankment protection work

1350 would occur is approximately 250 feet. The nearest school is Willow Elementary School, approximately
1351 0.4 mile north of the sediment removal location. The nearest place of worship, Salon del Reino de los
1352 Testigos de Jehova, is also approximately 0.4 mile north of the sediment removal location.

1353 Potential noise impacts would be short term and would occur during construction activities associated
1354 with the use of heavy equipment during the North Levee enlargement, North Levee embankment
1355 protection, rodent burrow repair and mitigation, and removal of sediment/debris. Construction activities
1356 would occur in localized areas. Construction equipment, such as a bulldozer, loader, compactor, and haul
1357 truck could be used. This type of construction equipment generates noise levels of about 82 dBA to 88
1358 dBA at 50 feet (Hanson et al. 2006). The magnitude of construction noise impacts would depend on the
1359 type of construction activity, the noise level generated by various pieces of construction equipment, the
1360 duration of the activity, the distance between the activity and noise-sensitive receptors, and any shielding
1361 effects provided by local barriers and topography (Hanson et al. 2006). A reasonable but conservative
1362 assumption is that three pieces of loud equipment would operate simultaneously and continuously for one
1363 hour or more. The combined sound level of three pieces of the loudest equipment (loader, truck, and
1364 bulldozer) is 91 dBA measured at 50 feet.

1365 Sound levels naturally *attenuate* due to distance. The energy in sound waves (and thus the sound
1366 intensity) drop with the square of the distance to the sound source. Thus, for stationary sources of noise,
1367 sound levels attenuate 6 decibels per doubling of distance (Hanson et al. 2006). A sound level of 91 dBA
1368 would attenuate to approximately 81 dBA at 160 feet (the nearest residence to the levee enlargement), 77
1369 dBA at 250 feet (the nearest residence to the embankment protection), and 58 dBA at 0.4 mile (nearest
1370 school and place of worship). In addition to distance alone, sound levels are further attenuated by
1371 manmade noise barriers, buildings, or by vegetation (Hanson et al. 2006).

1372 Noise and sound levels would be typical of construction activities and would be intermittent. The noise
1373 would be similar to the use of heavy equipment during existing periodic maintenance activities and would
1374 not represent a significant source of noise. Noise impacts would be lessened by confining construction
1375 activities to normal working hours and employing noise-controlled construction equipment to the extent
1376 possible. Occupational Safety and Hazard Administration standards for noise would be met to protect
1377 workers from hearing hazard during construction.

1378 No new long-term sources of noise would be introduced in the project area. The existing sources of noise
1379 discussed in Section 3.6.1.2.2 would remain.

1380 3.6.2.1.3 Public Health and Environmental Hazards

1381 Potential impacts to public health and environmental hazards are considered significant if the Proposed
1382 Action would:

- 1383 ■ Result in noncompliance with applicable Federal and state regulations;
- 1384 ■ Contribute contamination in the project area resulting in adverse effects to human health; or
- 1385 ■ Increase the amounts of generated or procured hazardous materials or wastes beyond current
1386 permitted capacities or management capabilities.

1387 Under the Proposed Action, the North Levee would be enlarged and stabilized, rodent burrows would be
1388 repaired, and channel sediments would be removed. In order to accomplish this, the use of motorized
1389 equipment containing fuel, oil, grease, and hydraulic fluid would be necessary. Implementing established
1390 industry BMPs for controlling releases of these substances would reduce the possibility of accidental
1391 releases of these products. Preventive maintenance and daily inspections of the equipment would ensure
1392 that any releases of these hazardous materials are minimized. Safety procedures described in the SPCC
1393 Plan developed for construction would be adhered to. Should an accidental release or spill of hazardous
1394 substances occur, procedures within the SPCC Plan would be followed to minimize potential impacts.
1395 Further, during construction activities, industry BMPs would be utilized to prevent the transport of
1396 sediment, trash, or construction debris to prevent impacts to downstream plant, animal, and aquatic
1397 communities. Rodenticides may be used to prevent additional rodent burrowing. If used, rodenticides
1398 would be applied by a licensed applicator and the appropriate rodenticide would be chosen based on the
1399 prevailing conditions. Rodenticides would be on private property, placed in bait boxes or burrows to limit
1400 human exposure. No significant impacts from hazardous materials or waste would occur as a result of the
1401 Proposed Action.

1402 The Tijuana River FCP would continue to be managed in accordance with applicable health and
1403 environmental compliance requirements. The Proposed Action would not adversely affect any USEPA-
1404 regulated hazardous materials, waste storage and disposal, or water discharge sites. Likewise, none of
1405 these sites would adversely affect the Proposed Action, primarily due to their distance and in some cases,
1406 the containment systems in place. The Proposed Action would not result in any increases in exposure to
1407 contamination on the site, and there are no ongoing remediation activities at the Tijuana River FCP. For
1408 these reasons, adverse impacts to public health and environmental hazards would not be expected to
1409 occur.

1410 **3.6.2.2 No Action Alternative**

1411 3.6.2.2.1 Air Quality

1412 Under the No Action Alternative, no changes or impacts would occur to air quality. No construction
1413 activities would be performed on the levee system and current management practices would not change.
1414 Consequently, the No Action Alternative would not result in any changes in the generation of air pollutant
1415 emissions during operations and maintenance activities. A USEPA General Conformity Determination
1416 would not be required.

1417 3.6.2.2.2 Noise

1418 Under the No Action Alternative, no changes to existing noise levels would occur. No construction
1419 activities would be performed on the levee system and current management practices would not change.
1420 The existing sources of noise discussed in Section 3.6.1.2.2 would remain.

1421 3.6.2.2.3 Public Health and Environmental Hazards

1422 Hazardous material and waste practices of the USIBWC in the Tijuana River FCP are in compliance with
1423 applicable state and federal regulations. Under the No Action Alternative, the Tijuana River FCP would

1424 continue to be in compliance. There would be no changes to the levee system, as it would not be
1425 rehabilitated. Therefore, no impacts to public health and environmental hazards would occur.

1426

1427 **4.0 CUMULATIVE IMPACTS AND IRREVERSIBLE AND IRRETRIEVABLE**
1428 **COMMITMENT OF RESOURCES**

1429 **4.1 Cumulative Impacts**

1430 The CEQ regulations (40 CFR 1508.7) require assessment of cumulative impacts in the decision-making
1431 process for federal projects. Cumulative impacts on environmental resources result from incremental
1432 effects of proposed actions, when combined with other past, present, and reasonably foreseeable future
1433 projects in the area. Cumulative impacts can result from individually minor, but collectively substantial,
1434 actions undertaken over a period of time by various agencies (federal, state, and local) or individuals.
1435 Informed decision making is served by consideration of cumulative impacts resulting from projects that
1436 are proposed, under construction, recently completed, or anticipated to be implemented in the foreseeable
1437 future.

1438 **4.1.1 Past, Present, and Reasonably Foreseeable Actions**

1439 USIBWC reviewed information on past, present, and reasonably foreseeable future projects and actions
1440 that could result in impacts to a particular resource over the same period and in the same general location
1441 as the Proposed Action. A review of current and proposed local, state, and federal activities in and near
1442 the project area identified three present or future projects within a 1-mile radius of the Tijuana River FCP.
1443 Present and reasonably foreseeable future actions that have been identified and are considered in the
1444 analysis of cumulative impacts are listed below. [Note: We are still waiting for a response from San
1445 Diego County for any projects that may occur in the area of the Tijuana River FCP that should be
1446 considered in the cumulative impacts section.]

- 1447 ■ The SBIWTP is currently under construction until November 2017. The construction involves a
1448 secondary tank and detention basin.
- 1449 ■ One present activity and two future activities were identified by the U.S. Customs and Border
1450 Protection.
- 1451 • Mowing of vegetation along levees to maintain visibility (present).
 - 1452 • Replacement of fencing along the levees.
 - 1453 • Vegetation control west of the Dairy Mart Bridge. U.S. Customs and Border Protection plans to
1454 use an integrated pest management approach for controlling vegetation in the area to improve
1455 surveillance capabilities. Management actions include a combination of mechanical, chemical,
1456 biological, and grazing methods and would be outlined and analyzed in an EA.

1457 **4.1.2 Cumulative Impacts Summary**

1458 **4.1.2.1 Proposed Action**

1459 **Water Resources.** The Proposed Action and present and future construction projects are subject to state
1460 permitting to ensure that impacts to water quality do not occur. This permitting process and associated
1461 BMPs would reduce the potential for adverse cumulative impacts to water quality. In addition, the levee
1462 maintenance and sediment removal along with vegetation control and improvements to the SBIWTP
1463 would beneficially impact water quality in the area. The vegetation management planned by the U.S.

1464 Customs and Border Protection, along with the Proposed Action, would beneficially cumulatively impact
1465 flood control. No cumulative impacts to groundwater or hydrology are expected.

1466 **Biological Resources.** The Proposed Action and present/future actions identified in the Tijuana River
1467 FCP area have the potential to impact wildlife due to disturbance from construction and have the potential
1468 to cause short-term, minor, adverse impacts on migratory bird species. Adherence to timing of
1469 construction (avoidance of nesting season) and the spatial and temporal separation of the project activities
1470 would reduce any cumulative impacts to insignificant levels. No suitable habitat for threatened and
1471 endangered species would be impacted by most of the projects. However, the habitat downstream of
1472 Dairy Mart Road is designated as critical habitat for the Least Bell's vireo. Vegetation impacts caused by
1473 the U.S. Customs and Border Protection vegetation management project would be minimized through
1474 BMPs and timing of the vegetation management and would be addressed in the EA for that project.
1475 Therefore, cumulative impacts are not likely to adversely affect any threatened or endangered species.

1476 **Land Use.** Cumulative impacts to land use are not expected as the Proposed Action and potential future
1477 projects are compatible with current land uses.

1478 **Cultural Resources.** The Proposed Action and other future projects would not affect any known
1479 archeological resources within the area. The projects all involve surface disturbance, most in previously
1480 disturbed areas. With mitigation as required for discovery of any previously undiscovered cultural
1481 material, impacts to cultural resources would be avoided. For this reason, cumulative impacts to cultural
1482 resources are not expected.

1483 **Socioeconomic Resources and Transportation.** When combined with the other present and future
1484 projects, the Proposed Action would not contribute to any long-term cumulative impacts to
1485 socioeconomics or transportation. Rehabilitation of the levees and improvements to the wastewater
1486 treatment plant would be beneficial cumulatively to the surrounding communities. Although increase in
1487 traffic from construction would occur, temporal separation of the projects would reduce any cumulative
1488 impacts and together the projects would not cause long-term changes to traffic volumes or patterns.

1489 **Environmental Health**

1490 **Air Quality.** The other planned projects listed above would result in similar emissions and air quality
1491 impacts as the Proposed Action, which would be minor and primarily temporary. Air emissions from
1492 construction equipment would not exceed the thresholds for any of the significance criteria. Cumulative
1493 impacts on local and regional air quality from construction activities related to the Proposed Action and
1494 other proposed and current projects would not be expected to adversely affect regional air quality.

1495 **Noise.** Levee enlargement and bank protection construction would cause increased short-term localized
1496 noise. It is unlikely that all of the planned construction-related projects would occur simultaneously nor
1497 are the construction areas close to one another. Therefore, the noise receptors (i.e., people living and
1498 working near the planned projects) would only be impacted by some of the projects, but not all of them.
1499 Cumulative impacts to noise would be minor, localized, and temporary.

1500 **Public Health and Environmental Hazards.** Historically, the Tijuana River water has been
1501 contaminated by raw sewage, sediment, and debris. Sediment removal, erosion control of the levees, and

1502 the improvements to the SBIWTP would provide beneficial cumulative impacts to water quality and
1503 therefore to public health.

1504 Herbicide and rodenticide usage would be spatially and temporally separated within the Tijuana River
1505 area. Application by licensed applicators and the use of appropriate chemicals would reduce the chance of
1506 cumulative environmental hazards. Adherence to BMPs and any SPCC plans would also reduce any
1507 potential cumulative impacts from the Proposed Action when combined with present and future projects.

1508 **4.1.2.2 No Action Alternative**

1509 Under the No Action Alternative activities to improve or rehabilitate the levee system would not occur.
1510 Therefore, the No Action Alternative would not result in any cumulative effects.

1511 **4.2 Irreversible and Irrecoverable Commitment of Resources**

1512 NEPA CEQ regulations require environmental analyses to identify "...any irreversible and irretrievable
1513 commitments of resources that would be involved in the proposal should it be implemented" (40 CFR
1514 Section 1502.16). A commitment of resources is irreversible when its primary or secondary impacts limit
1515 the future options for a resource or limit those factors that are renewable only over long periods of time.
1516 Examples of nonrenewable resources are minerals, including petroleum. An irretrievable commitment of
1517 resources refers to the use or consumption of a resource that is neither renewable nor recoverable for use
1518 by future generations. An example of an irretrievable resource is the loss of a recreational use of an area
1519 or the disturbance of a cultural site. While an action may result in the loss of a resource that is
1520 irretrievable, the action may be reversible. Irreversible and irretrievable commitments of resources are
1521 primarily related to construction activities.

1522 For the Proposed Action, resources consumed during construction, including labor, fossil fuels, and
1523 construction materials (soil and rip rap), would be committed for the life of the project. Non-renewable
1524 fossil fuels would be irretrievably lost through the use of gasoline- and diesel-powered construction
1525 equipment. Irretrievable commitment of building materials for construction of the Proposed Action would
1526 also occur. The expenditure of funds from USIBWC would also be irreversible.

1527 The Proposed Action would continue to commit the levee areas around the Tijuana River FCP for future
1528 flood control and retention of the previously disturbed area would continue. Although these resources
1529 (e.g., land, soils) could be reclaimed in the future, it is unlikely that they would be restored to their
1530 original conditions and functionality. Therefore, these commitments are considered irreversible.
1531 Implementation of BMPs used during construction would reduce the potential for the irreversible or
1532 irretrievable loss of natural resources as a result of the Proposed Action.

1533

1534 **5.0 CONCLUSIONS**

1535 Direct, indirect, and cumulative impacts of the Proposed Action and No Action Alternative have been
1536 considered. The Proposed Action would cause short-term impacts during construction activities to water
1537 quality, biological resources, transportation, air quality, and noise. No long-term adverse impacts would
1538 occur. Beneficial impacts to flood control and the San Ysidro community, which has a population with a
1539 high percentage of minorities and persons with low-income, would be realized by rehabilitating the levees
1540 to perform in a 100-year flood event. Potential beneficial impacts to biological resources may result from
1541 removal of sediment and debris and reduced potential for sedimentation downstream of the Tijuana River
1542 FCP. No impacts to land use, cultural resources, regional economics, or public health and environmental
1543 hazards are expected. The evaluation performed within this EA concludes that there would be *no*
1544 *significant impact* to the human environment as a result of the implementation of any of the alternatives.
1545 Therefore, the issuance of a Finding of No Significant Impact is warranted, and preparation of an EIS is
1546 not required.

1547

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APPENDIX A

Consultation



INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

November 21, 2016

G. Mendel Stewart, Field Supervisor
U.S. Fish and Wildlife Service
Carlsbad Fish & Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008
Phone: (760) 431-9440

Subject: Informal Consultation for the Rehabilitation of the Levee System in the Tijuana River Flood Control Project

Dear Mr. Stewart:

The U.S. Section of the International Boundary and Water Commission (USIBWC) requests informal consultation with the U.S. Fish and Wildlife Service (USFWS) for the rehabilitation of the levee system in the Tijuana River Flood Control Project (FCP) pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, the Bald and Golden Eagle Protection Act (BGEPA), and the Migratory Bird Treaty Act (MBTA).

Project Background

The USIBWC operates and maintains the Tijuana River FCP, located in southern San Diego County, California (Attachment A, Figure 1). It consists of a levee system that runs along a modified stream channel 2.3 miles long, extending from the international border to the start of the natural Tijuana River channel. The floodway between the north and south levees encompasses approximately 400 acres. The purpose of the Proposed Action is to rehabilitate the two levees to ensure they will perform during a 100-year flood event and protect the surrounding communities. The North Levee is approximately 2-miles long. The North Levee extends from the international border to the west for 5,400 feet, makes a 90-degree turn north and travels along Camino De La Plaza Road for approximately 4,000 feet, and turns west for approximately 1,200 feet where it terminates at Dairy Mart Road. The South Levee is approximately 1.9-miles long. The South Levee extends from the international border to Dairy Mart Road. The South Levee consists of three segments: 1) a concrete-lined section extending approximately 1,200-feet downstream from the international border, 2) a section protected with grouted stone for about 4,000-feet downstream of the concrete-lined section, and 3) a section protected with riprap that was realigned around the South Bay International Wastewater Treatment Plant (SBIWTP) to Dairy Mart Road, approximately 4,800-feet long.

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(915) 832-4100 • Fax: (915) 832-4190 • <http://www.ibwc.gov>

The Tijuana River FCP, upstream of Dairy Mart Road, has been impacted by urban development, vegetation clearing for border patrol operations, and agricultural practices. Currently, the northern portion of the FCP is leased for agricultural production as a sod farm. The low-flow channel is normally dry as dry-weather flows are currently intercepted at the border for treatment at the USIBWC-operated SBIWTP, and the Tijuana River is considered ephemeral. Vegetation within the FCP consists of non-native grassland or disturbed/ruderal communities and is usually kept less than 2-feet tall for flood control purposes. Downstream of Dairy Mart Road are areas of Southern Willow Scrub land, Mule Fat Scrub and freshwater marsh, interspersed with disturbed floodplain and other types of disturbed land (see photos in Attachment A).

A freshwater emergent wetland is classified at the northwest end of the project area where the river crosses under Dairy Mart Road and into the Tijuana River Valley Regional Park. No work is planned in the area and no impacts to the wetland would occur.

Proposed Action

The USIBWC conducted a geotechnical analysis and engineering evaluation of both levees to determine requirements to provide reasonable assurance that the levees will perform during a 100-year flood event. The Proposed Action is consistent with these requirements and consists of the activities listed below.

North Levee enlargement: The North Levee is deficient in the required freeboard at the westerly end and at one location near the end of the concrete channel. Freeboard of a levee is defined as the height of the levee that extends above the design flood level. It serves as a factor of safety for containing water in the river without overtopping the levee. The area of deficient freeboard extends east from Dairy Mart Road for about 2,250 feet. The Proposed Action would increase the height of the levee by placing embankment fill on the top and the landside slope of the existing levee. The right-of-way and existing levee crest are sufficiently wide that this can be accomplished without filling beyond the existing riverside slope of the levee. The width of the top of the levee would be a minimum of 24-feet wide. The existing pavement or gravel surfacing on the levee crest would need to be removed prior to placement of the new embankment fills. Pavement or other surfacing would be placed on the levee crest once the embankment is enlarged.

North Levee embankment protection: Erosion continues to persist near the 90-degree bend in the North Levee. To protect the embankment, buried riprap would be placed below the riverside toe in a localized area. Buried riprap would be placed about 18 inches below the ground surface of the levee toe.

Rodent burrow repair and mitigation: Ground squirrels, most likely California ground squirrels, have damaged both levees by creating burrows. Squirrels are attracted to levees because the higher ground allows them to observe potential predators better from their burrows. USIBWC would

repair shallow rodent burrows by re-compacting the surface. For deeper rodent burrows, disturbed soil would be removed and replaced with a properly compacted fill. Measures to prevent additional burrowing may include use of the following:

- Erosion control blankets, woven textiles, turf reinforcement, cellular mats, or other alternative armor materials on the landside slopes.
- Structural or hardened features on riverside slopes, such as riprap, concrete facing, revetment mats, gabions, large gauge wire mesh, and mechanically stabilized earth walls. Hardened features would not be used on landslide slopes so as not to impair levee inspections.
- Bentonite clay slurry grout or a 90 percent/10 percent concrete slurry injection to backfill the rodent holes.
- Rodent control through fumigants, toxicants, or bait stations. Examples of fumigants that have been used for ground squirrel control include aluminum phosphide and gas cartridges. Aluminum phosphide is a Restricted Use Pesticide and can only be purchased and applied by a certified pesticide applicator. Zinc phosphide and two anticoagulants, chlorophacinone and diphacinone, are registered for ground squirrel control. Zinc phosphide is also a Restricted Use Pesticide. A certified pesticide applicator would be consulted for specific recommendations and prevailing conditions (e.g. soil moisture, vegetation present) would be taken into account to determine the most effective pesticide to use.

Excavation of sediment: Dredging in the floodplain would not occur under the Proposed Action; however, recent hydrological modeling has shown that sediments in the low flow channel up to the energy dissipators should be removed to improve flow. See figures for location.

Threatened, Endangered, and Candidate Species and Critical Habitat

USIBWC accessed the USFWS Information, Planning, and Conservation Online system (<http://ecos.fws.gov/ipac/>) on 19 October 2016 to determine if any federally-listed species potentially occur in the vicinity of the Proposed Action. The following species are federally listed in San Diego County (Table 1).

Table 1. Federally Listed, Proposed, and Candidate Species Known to or That May Occur in San Diego County, California

Common Name	Scientific Name	Federal Listing	Habitat Preference
Crustaceans			
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	E	Vernal pools, ponds and other ephemeral pool-like bodies of water
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	E	Vernal pools, ponds and other ephemeral pool-like bodies of water
Insects			
Quino checkerspot butterfly	<i>Euphydryas editha quino</i> (= <i>E. e. wrighti</i>)	E	Patchy scrublands
Birds			
California least tern	<i>Sterna antillarum browni</i>	E	Coastal areas and open beaches
Coastal California gnatcatcher	<i>Polioptila californica californica</i>	T	Coastal sage scrub habitats
Least Bell's vireo*	<i>Vireo bellii pusillus</i>	E	Willow-dominated riparian habitats for breeding
Light-footed clapper rail	<i>Rallus longirostris levipes</i>	E	Coastal salt marshes
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	Dense riparian habitats
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	T	Flat, open coastal beaches, in dunes, and near stream mouths
Mammals			
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	E	Predominantly found on sandy substrates within coastal sage scrub habitats
Flowering Plants			
California orcutt grass	<i>Orcuttia californica</i>	E	Vernal pools
Otay Mesa-mint	<i>Pogogyne nudiuscula</i>	E	Vernal pools on coastal mesas
Otay tarplant	<i>Deinandra</i> (= <i>Hemizonia</i>) <i>conjugens</i>	T	Open coastal sage scrub and native and non-native grasslands in clay soils
Salt marsh bird's-beak	<i>Cordylanthus maritimus</i> <i>ssp. maritimus</i>	E	Salt marsh
San Diego ambrosia	<i>Ambrosia pumila</i>	E	Upper terraces of rivers and drainages
San Diego button-celery	<i>Eryngium aristulatum</i> <i>var. parishii</i>	E	Vernal pools
San Diego thornmint	<i>Acanthomintha ilicifolia</i>	T	Restricted to gabbro soils within coastal sage scrub, chaparral, and native grassland
Spreading navarretia	<i>Navarretia fossalis</i>	T	Freshwater-marsh, vernal-pools

T = Threatened

E = Endangered

* = designated critical habitat in study area

Existing Conditions for Listed Species

Riverside fairy shrimp are generally restricted to vernal pools and other non-vegetated ephemeral (i.e., containing water a short time) pools greater than 12 inches in depth in Riverside, Orange, and San Diego counties in southern California, and northwestern Baja California, Mexico. Populations

have been documented east of I-5 and the project site in Otay Mesa. Riverside fairy shrimp generally occur in groups of vernal pools referred to as vernal pool complexes. San Diego fairy shrimp are generally restricted to vernal pools and other non-vegetated ephemeral (i.e., containing water a short time) basins 2 to 12 inches in depth in coastal southern California and northwestern Baja California, Mexico. Occupied vernal pool complexes for the San Diego fairy shrimp occur east of I-5 in Otay Mesa and one occurrence in the Tijuana Slough National Wildlife Refuge. Following winter rainstorms, vernal pools form in depressions above an impervious soil layer or layers. Water evaporates from these pools during the spring and early summer. Vernal pools within a complex are generally hydrologically connected, such that water flows over the surface from one vernal pool to another and/or water flows and collects below ground such that the soil becomes saturated with water, thus filling the vernal pool with water. The entire floodplain of the Tijuana River in the study area is highly disturbed and large portions of the floodplain are farmed at various times. Vernal pool complexes do not exist in the levee area of the Proposed Action and therefore impacts to fairy shrimp are not expected.

Quino checkerspot butterfly's historical range included much of non-montane southern California: southwestern Ventura; southwestern San Bernardino; Los Angeles; Western Riverside; and San Diego counties. Quino habitat is characterized by patchy shrub or small tree landscapes with openings of several meters between large plants, or a landscape of open swales alternating with dense patches of shrubs. Current occurrences complexes (estimators of approximate population location and population membership) for the species are located in the Otay Mesa area east of the project site. This species is unlikely to exist in the project area due to lack of habitat.

California least terns are the smallest of the North American terns living along the coast. This species nests in open beaches free of vegetation, and nesting is currently limited to colonies in San Francisco Bay, Sacramento River delta, and areas along the coast from San Luis Obispo County to San Diego County. Least terns need cleared, sandy areas for nesting and depend on estuaries, lagoons, and other open water areas for hunting small fish. Terns are known to occur in the Tijuana Slough National Wildlife Refuge west of the project area.

The coastal California gnatcatcher is found only in coastal sage scrub generally dominated by California sagebrush, buckwheat, salvia, and prickly-pear cactus. The gnatcatcher forages through the shrubs and low trees searching for insects. Critical habitat lies east of the project area and this species has been known to occur in the Tijuana Slough National Wildlife Refuge.

Light-footed clapper rails prefer to nest in tidal marshes dominated by cordgrass. There are an estimated 100 pairs in San Diego County with breeding populations scattered throughout coastal lagoons and estuaries. The Tijuana River estuary is an especially critical site, supporting a record 80 pairs in 1999.

The Southwestern willow flycatcher is one of four currently recognized subspecies of the willow flycatcher. The subspecies typically occurs in dense riparian vegetation on moist soils near slow-

moving or swampy water. In many cases, nest plants are rooted in or overhang standing water, and occupied sites are typically located along slow-moving stream reaches, at river backwaters, in swampy abandoned channels and oxbows, marshes, and at the margins of impounded water (e.g., beaver ponds, inflows of streams into reservoirs). Critical habitat for the flycatcher has been designated but does not occur within the project area.

The Western snowy plover is a threatened small shorebird. The species nests in a shallow scrape in sand, usually lined with small pebbles and shells along the shores, peninsulas, offshore islands, bays, estuaries, and rivers of the Pacific Coast. Snowy plovers are year round residents of San Diego County and nest along the coastline with breeding concentrations in Camp Pendleton and the Silver Strand.

Within the County of San Diego Regional Park, state and federally endangered species include migrant individuals of the southwestern willow flycatcher, pairs of the light-footed clapper rail within the ponds to the west of Dairy Mart Road, and breeding populations of Coastal California gnatcatchers in the upland areas (2008 biological survey). Habitat for these five avian species does not occur in the disturbed habitats of the Tijuana River FCP and therefore no impacts from the Proposed Action are expected.

The final avian species that has the potential to occur in the project area is the Least Bell's vireo. This species is the western-most subspecies, breeding entirely within California and northern Baja California. Vireos can occupy a variety of habitats during the winter including mesquite scrub within arroyos, palm groves, and hedgerows bordering agricultural and residential areas; however, breeding habitat is restricted to willow-dominated riparian areas. Early to mid-successional riparian habitat is typically used for nesting by the Least Bell's vireo because it supports the dense shrub cover required for nest concealment as well as a structurally diverse canopy for foraging. Critical habitat for this species occurs at the north end of the project area (Figure 2) and breeding populations of the Least Bell's vireo occur within the County of San Diego Regional Park. Designated critical habitat extends south of Dairy Mart Road, however, no habitat for the vireo occurs within the floodplain of the Tijuana River FCP (see photos in Attachment A). Although the Tijuana River FCP lacks suitable habitat for the Least Bell's vireo, critical habitat and potential habitat occur just to the north of the project area; therefore, this species is considered further in the analysis.

The Pacific pocket mouse is endemic to the coast of southern California. This subspecies of pocket mouse historically occupied coastal strand, coastal dunes, river alluvium, and coastal sage scrub habitats within 4 kilometers of the ocean. The species is currently restricted to coastal sage scrub habitat. The Pacific pocket mouse distribution is very limited in southern California with four known populations documented since its listing in 1994. Habitat for this species does not occur within the project area and therefore no impacts to this species are expected.

Eight listed plant species were listed as potentially occurring in the Tijuana River FCP area. California Orcutt grass is a tufted annual grass restricted to vernal pools in southern California and a few occurrences in northern Baja California, Mexico. At the time of listing, *O. californica* was thought to be restricted to four general localities: the Santa Rosa Plateau, Skunk Hollow, and Salt Creek (now identified as the Stowe Pools) in Riverside County, and Otay Mesa in San Diego County. The species was likely never widespread, compared to other obligate plant species, because deeper pools with longer inundation times (longer seasonal ponding) are less common in southern California. Preferred habitat for this species does not occur in the project area and therefore no impacts are expected.

Otay Mesa-mint is restricted to vernal pools and has been documented east of the project area in Otay Mesa. It is often found with other federally listed species, including San Diego button-celery, California Orcutt grass, and Riverside fairy shrimp. Habitat for this species does not occur within the Tijuana FCP; therefore, no impacts are expected.

Otay tarplant has a narrow ecological distribution and is endemic to southwestern San Diego County, California, and northwestern Baja California, Mexico. Known populations occur north of the project area. The species' distribution is strongly correlated to clay soils found in much of the Otay Ranch's Otay Valley Parcel (in eastern Chula Vista), and Otay Mesa (south of the Otay River and west of Otay Mountain) east of the project area. Populations occur in open coastal sage scrub and native and non-native grasslands; habitat is not found in the Tijuana FCP.

Salt marsh bird's-beak is a hemiparasitic halophytes found in disjunct coastal salt marshes of southern and central California and adjacent northern Baja California, Mexico. Plants have naturally patchy distributions in sites subject to only higher tidal influxes in coastal salt marshes. This species has been documented in the Tijuana estuary. The Tijuana FCP does not support salt marshes and therefore this species would not be impacted by the Proposed Action.

San Diego ambrosia is found primarily on upper terraces of rivers and drainages; however, several patches of the plant occur within the watershed of a large vernal (ephemeral) pool at the Barry Jones (Skunk Hollow) Wetland Mitigation Bank in Riverside County. Current distribution of extant population of the species occurs east of the Tijuana FCP.

San Diego button-celery currently occurs in 14 geographic areas in Riverside and San Diego counties. Although the species can be locally abundant, the loss of vernal pool habitat in San Diego County has dramatically decreased the distribution of San Diego button-celery. The closest known population occurs east of the Tijuana FCP in the Otay Mesa. This species is not likely to occur in the Tijuana FCP due to lack of preferred habitat.

San Diego thornmint is restricted to gabbro soils derived from igneous rock, and gray calcareous clay soils derived from soft calcareous sandstone and is endemic to San Diego County, California, and northwestern Baja California, Mexico. Current populations are located north and east of the project area. Preferred habitat for the species includes openings within coastal sage scrub,

chaparral, and native grassland on gentle southeast to west facing slopes. This species does not occur in the project area and would not be impacted by the Proposed Action.

In San Diego County, Spreading navarretia is typically found in vernal pools. In western Riverside County however, the species is associated with seasonally flooded alkali vernal plain habitat that includes alkali playa (highly alkaline, poorly drained), alkali scrub, alkali vernal pool, and alkali annual grassland components. The majority of the populations of spreading navarretia at the time of listing were concentrated at three locations: Otay Mesa in southern San Diego County, alongside the San Jacinto River in western Riverside County, and near Hemet in western Riverside County. Current distributions are well to the north and east of the project area and therefore no impacts to this species are expected.

No known bald eagle nesting territories have been documented in the project area, and the available habitat does not support bald eagle foraging or nesting. The project area also does not support habitat for nesting golden eagles.

Analysis of the Effects of the Actions

Although habitat for listed species does not occur within the project area, critical habitat for the Least Bell's vireo is designated at the northwest portion of the Tijuana FCP. Therefore impacts to the Least Bell's vireo are considered in this analysis. Potential impacts would be short term and executed in limited footprints throughout the Tijuana FCP depending on the activity. Increased noise and vibrations from construction and sediment removal activities may disturb the daily activities of the Least Bell's vireo and other migratory birds.

The use of rodenticides to remove ground squirrel populations has the potential to impact other non-target species if not properly applied. Ground squirrels could potentially die above ground exposing scavengers (e.g. coyotes and vultures) to low levels of the rodenticides.

Determination of the Effects from the Proposed Action

The enlargement of the North Levee occurs in close proximity to the Least Bell's vireo designated critical habitat as well as habitat for other migratory birds. The habitat immediately surrounding the levee, however, is composed of agricultural production within the floodplain and development. Best management practices (BMPs) employed during levee enlargement, including dust suppression and erosion control, as well as timing, would prevent adverse effects to the Least Bell's vireo and other migratory birds. Construction activities would occur outside the nesting season (April through July). Removing accumulated sediment and protecting the embankment would increase river flow and prevent future deposits of sediment upstream in the estuary.

If used, rodenticides would be applied by a licensed applicator and the appropriate rodenticide would be chosen based on the prevailing conditions. The use of spot baiting at burrows or bait boxes would reduce the exposure to non-target species. Although studies have shown that semi- and fossorial rodents tend to expire underground, there is a chance that some ground squirrels may

be located above ground after application. The treated area would be searched daily after application to reduce the exposure of scavengers to carcasses.

For these reasons, we conclude that conducting rehabilitation on the Tijuana FCP levees, *may affect, but is not likely to adversely affect* the Least Bell's vireo. No impacts to critical habitat would occur. USIBWC respectfully requests concurrence on this determination in compliance with Section 7 of the ESA. If you have any questions or require more information, please contact me at 915-832-4703 or wayne.belzer@ibwc.gov within thirty (30) days of receipt of this letter.

Sincerely,



Gilbert G. Anaya
Division Chief
Environmental Management Division

Attachment(s):

Attachment A- Project Area Maps and Photos

ATTACHMENT A

Project Area Maps and Photos

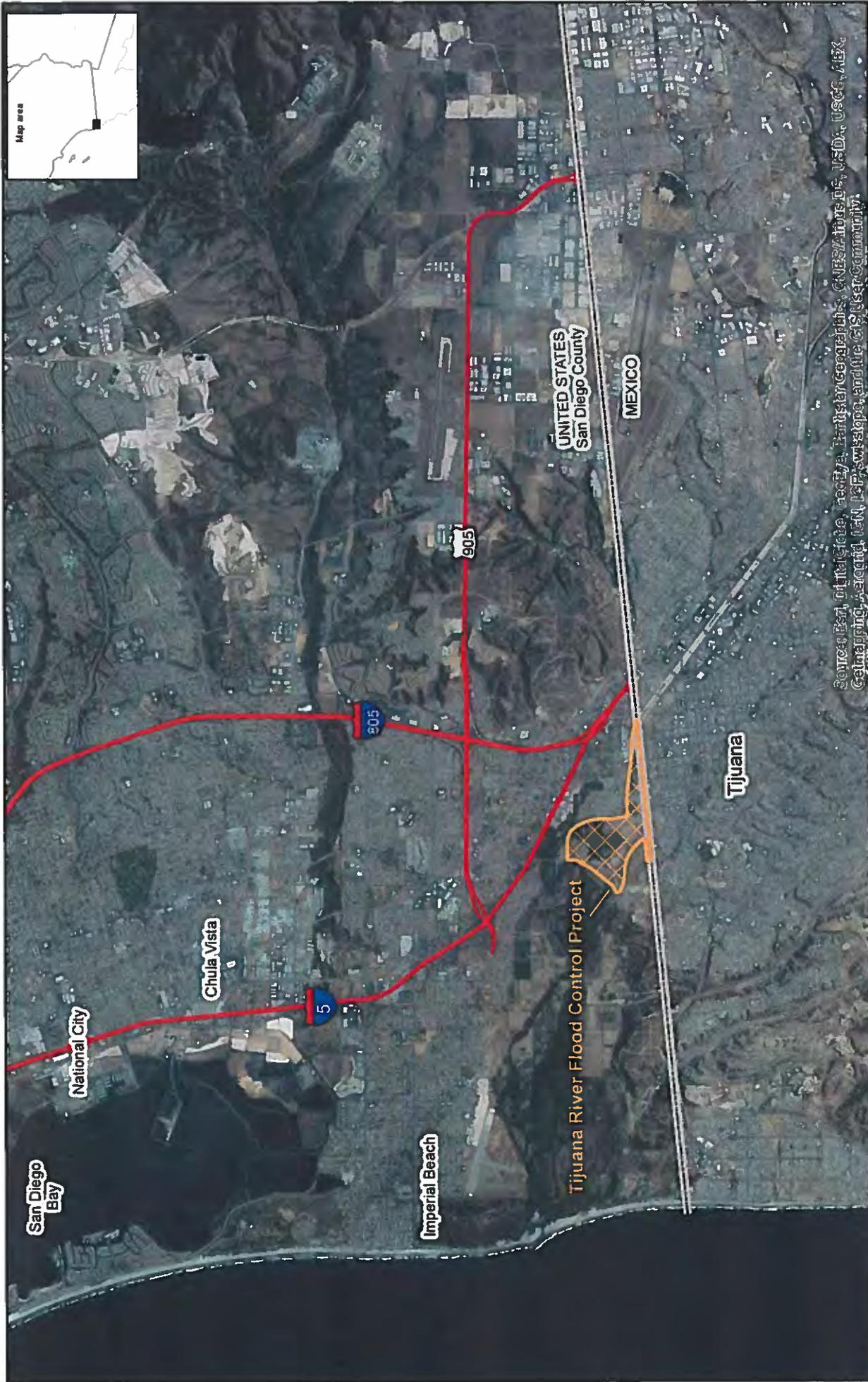


Figure 1. Tijuana River Flood Control Project Location

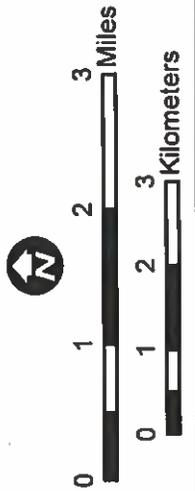




Figure 3. Proposed Area for Sediment and Debris Removal



Figure 4 Upstream Reach of Tijuana River FCP Programmatic EIS for Improvements to the Tijuana River Flood Control Project





Floodplain habitat between the North and South Levees.



Sod farming in the floodplain of the Tijuana River looking west from North Levee.



Energy dissipator between the North and South Levees. Access road comes off of the North Levee for the border patrol to use.



Access roads used by the border patrol in the Tijuana FCP floodplain. Looking west from North Levee.



Ground squirrel burrows along the North Levee.



Tijuana River Valley Regional Park, west of Dairy Mart Road and the Tijuana FCP.



OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

November 23, 2015

Ms. Julianne Polanco
California State Historic Preservation Officer
1725 23rd Street
Suite 100
Sacramento, CA. 95816

Dear Ms. Polanco:

The United States Section of the International Boundary and Water Commission (USIBWC) requests consultation with the California Office of Historic Preservation (OHP). This pertains to the rehabilitation of the levee system in the Tijuana River Flood Control Project (FCP) pursuant to 36 CFR 800. A Final Programmatic Environmental Impact Statement was completed in 2008 and we are in the final stages of a draft Environmental Assessment (EA) for this project.

Project Background

The USIBWC operates and maintains the Tijuana River FCP, located in southern San Diego County, California (Attachment A, Figure 1). It consists of a levee system that runs along a modified stream channel 2.3 miles long, extending from the international border to the start of the natural Tijuana River channel. The floodway between the north and south levees encompasses approximately 400 acres. The Area of Potential Effects (APE) is to rehabilitate the two levees to ensure they will perform during a 100-year flood event and protect the surrounding communities. The North Levee is approximately 2-miles long. The North Levee extends from the international border to the west for 5,400 feet, makes a 90-degree turn north and travels along Camino De La Plaza Road for approximately 4,000 feet, and turns west for approximately 1,200 feet where it terminates at Dairy Mart Road. The South Levee is approximately 1.9-miles long. The South Levee extends from the international border to Dairy Mart Road. The South Levee consists of three segments: 1) a concrete-lined section extending approximately 1,200-feet downstream from the international border, 2) a section protected with grouted stone for about 4,000-feet downstream of the concrete-lined section, and 3) a section protected with riprap that was realigned around the South Bay International Wastewater Treatment Plant (SBIWTP) to Dairy Mart Road, approximately 4,800-feet long. These levees and the concrete-lined section were built from 1978 to 1979 by Kasler Corporation under contract with USIBWC.

The Tijuana River FCP, upstream of Dairy Mart Road, has been impacted by urban development, vegetation clearing for border patrol operations, and agricultural practices. Currently, the northern portion of the FCP is leased for agricultural production as a sod farm. The low-flow channel is normally dry as dry-weather flows are currently intercepted at the border for treatment at the USIBWC-operated SBIWTP, and the Tijuana River is considered ephemeral. Vegetation within the FCP consists of non-native grassland or disturbed/ruderal communities and is usually kept less

than 2-feet tall for flood control purposes. Downstream of Dairy Mart Road are areas of Southern Willow Scrub land, Mule Fat Scrub and freshwater marsh, interspersed with disturbed floodplain and other types of disturbed land (see photos in Attachment A). A freshwater emergent wetland is classified at the northwest end of the project area where the river crosses under Dairy Mart Road and into the Tijuana River Valley Regional Park. No work is planned in the area and no impacts to the wetland would occur.

Proposed Action

The USIBWC conducted a geotechnical analysis and engineering evaluation of both levees to determine requirements to provide reasonable assurance that the levees will perform during a 100-year flood event. The Proposed Action is consistent with these requirements and consists of the activities listed below.

North Levee enlargement: The North Levee is deficient in the required freeboard at the westerly end and at one location near the end of the concrete channel. Freeboard of a levee is defined as the height of the levee that extends above the design flood level. It serves as a factor of safety for containing water in the river without overtopping the levee. The area of deficient freeboard extends east from Dairy Mart Road for about 2,250 feet. The Proposed Action would increase the height of the levee by placing embankment fill on the top and the landside slope of the existing levee. The right-of-way and existing levee crest are sufficiently wide that this can be accomplished without filling beyond the existing riverside slope of the levee. The width of the top of the levee would be a minimum of 24-feet wide. The existing pavement or gravel surfacing on the levee crest would need to be removed prior to placement of the new embankment fills. Pavement or other surfacing would be placed on the levee crest once the embankment is enlarged.

North Levee embankment protection: Erosion continues to persist near the 90-degree bend in the North Levee. To protect the embankment, buried riprap would be placed below the riverside toe in a localized area. Buried riprap would be placed about 18 inches below the ground surface of the levee toe.

Excavation of sediment: Dredging in the floodplain would not occur under the Proposed Action; however, recent hydrological modeling has shown that sediments in the low flow channel up to the energy dissipators, located entirely in the concrete lined section of the flood control project, should be removed to improve flow. See figures for locations.

Cultural Sites

Cultural resources in the area of the APE consist of several sites that were recorded. Most of these are no longer in existence or located on private property and will not be impacted. In the North Levee location, Regional Environmental Consultants (Recon) conducted a Historic Properties Inventory in 1990 for the City of San Diego Clean Water Program. Site CA-SDI-4934 / 12962, consisted of 50 felsite flakes and two flaked stone tools with isolates recorded nearby. This site was located in an active gravel quarry north of the North Levee. The North Levee locations have been disturbed heavily since this report. The heavy disturbance that has taken place in the North

Levee area will have no adverse effect as we believe there are no cultural properties now in existence along this location.

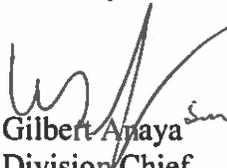
The South Levee areas are similar to the North Levee as this area has also been heavily disturbed. No sites are included in this location, but sites CA-SDI-11245, CA-SDI-4933 and CA-SDI-13486 are nearby but not impacted by this project or no longer in existence.

The USIBWC believes that no historic properties will be affected as this area has been highly disturbed in the past, including regular maintenance, sediment removal, and vegetation control. USIBWC projects are documented under *A Cultural Resources Overview for the Rio Grande and Tijuana River Flood Control Projects* prepared in 2005 by Geo-Marine, Inc. and *Final Programmatic Environmental Impact Statement Improvements to the Tijuana River Flood Control Project* prepared in 2008 by Parsons and are attached here for reference (Attachment B).

USIBWC asks for concurrence for the project to proceed as stipulated with no impacts to cultural or historical sites. All USIBWC projects will have a Field Environmental Monitor (FEM) as part of the project. Our FEM will have Cultural Resource experience in this area.

We look forward to our continuing consultation with CASHPO, and yourself as a point of contact on matters dealing with the FCP. Please feel free to contact Mr. Mark Howe, Cultural Resources Specialist, Environmental Management Division, at (915) 832-4767 or mark.howe@ibwc.gov for any assistance on this project.

Sincerely,



Gilbert Amaya
Division Chief
Environmental Management Division

Attachment(s):
As Stated

APPENDIX B

Distribution List

Distribution List

The following agencies and/or persons were notified when the Draft EA was available for review.

Federal Agencies

State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
430 G Street, #4164
Davis, CA 95616-4164

Area Manager
United States Bureau of Reclamation
Southern California Area Office
27708 Jefferson Ave., Suite 202
Temecula, CA 92590

Regional Administrator
Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

Doug Liden
Environmental Engineer
USEPA Mexico Border Office
610 W. Ash St. STE 905
San Diego, CA 92101

Senior Project Manager, Regulatory Division
U.S. Army Corps of Engineers
5900 La Place Ct. Suite 100
Carlsbad, CA 92008

Bureau of Land Management
California State Office
2800 Cottage Way, Suite W-1623
Sacramento, CA 95825-1886

Field Supervisor
Carlsbad Fish and Wildlife Office
United States Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 94296

Supervisory Patrol Agent
U.S. Border Patrol - Imperial Beach Station
1802 Saturn Blvd.
San Diego, CA 92154

State Agencies

California State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812

Regional Water Quality Control Board
San Diego Region
2375 Northside Drive, Ste. 100
San Diego, CA 92108

California Department of Fish and Wildlife
South Coast Region 5
3883 Ruffin Road
San Diego, CA 92123

CA Department of Parks & Recreation
301 Caspian Way
Imperial Beach, CA 91932

California Coastal Commission
7575 Metropolitan Drive, #103
San Diego, CA 92108

Municipal

City of San Diego Env. Health
9325 Hazard Way
San Diego, CA 92123

City of San Diego Water Utilities
2797 Cominito Cbollas
San Diego, CA 92105

Mayor / City Manager
City of Imperial Beach
825 Imperial Beach Blvd.
Imperial Beach, CA 91932

Office of The Mayor, City of San Diego
202 C St., 11th Floor
San Diego, CA 92101

Mayor's Office
City of Coronado
1825 Strand Way
Coronado, CA 92118

San Ysidro Community Planning Group
Michael Freedman, Chair
3833 Via Del Bardo
San Ysidro, CA 92173-1557

Other

San Diego County Parks & Recreation
5500 Overland Ave #410
San Diego, CA 92123

Sierra Club, San Diego Chapter
3820 Ray St
San Diego, CA 92123

San Ysidro Native Plant Society
P.O. Box 1390
San Diego, CA 92112

Audubon Society
4010 Morena Blvd., Ste. 100
San Diego, CA 92117

Imperial Beach Eagle & Times
1116 Tenth Street
Coronado, CA 92118

Tijuana Sloughs Surf Club
753 Iris Ave
Imperial Beach, CA 91932

WILD COAST
757 Emory St. #161
Imperial Beach, CA 91932

Tijuana River National Estuarine Research Reserve
301 Caspian Way
Imperial Beach, CA 91932

Surfrider Foundation San Diego County Chapter
9883 Pacific Heights Blvd
Suite D
San Diego, CA 92121

APPENDIX C

Notice of Availability

Notice of Availability
Draft Environmental Assessment for Rehabilitation of the Levee System in the
Tijuana River Flood Control Project

The U.S. International Boundary and Water Commission (USIBWC) invites public comments on the Draft Environmental Assessment (EA) for Rehabilitation of the Levee System in the Tijuana River Flood Control Project.

The USIBWC has prepared a draft EA to evaluate the environmental effects of rehabilitating the levee system to ensure it will perform during a 100-year flood event and protect the surrounding communities.

A copy of the draft EA and draft Finding of No Significant Impact will be available for review beginning **Month Day**, 2016 at the following locations:

San Ysidro Library
101 W. San Ysidro Blvd.
San Ysidro, CA 92173

USIBWC website:

http://www.ibwc.state.gov/EMD/reports_studies.html#Environ_Assessments

You may also request a copy of the document from the address below.

Please forward written comments to:

Wayne Belzer
4171 N. Mesa, C-100
El Paso, TX 79902
Email to: wayne.belzer@ibwc.gov

THE DEADLINE FOR PROVIDING PUBLIC COMMENTS IS **MONTH DAY, 2016**